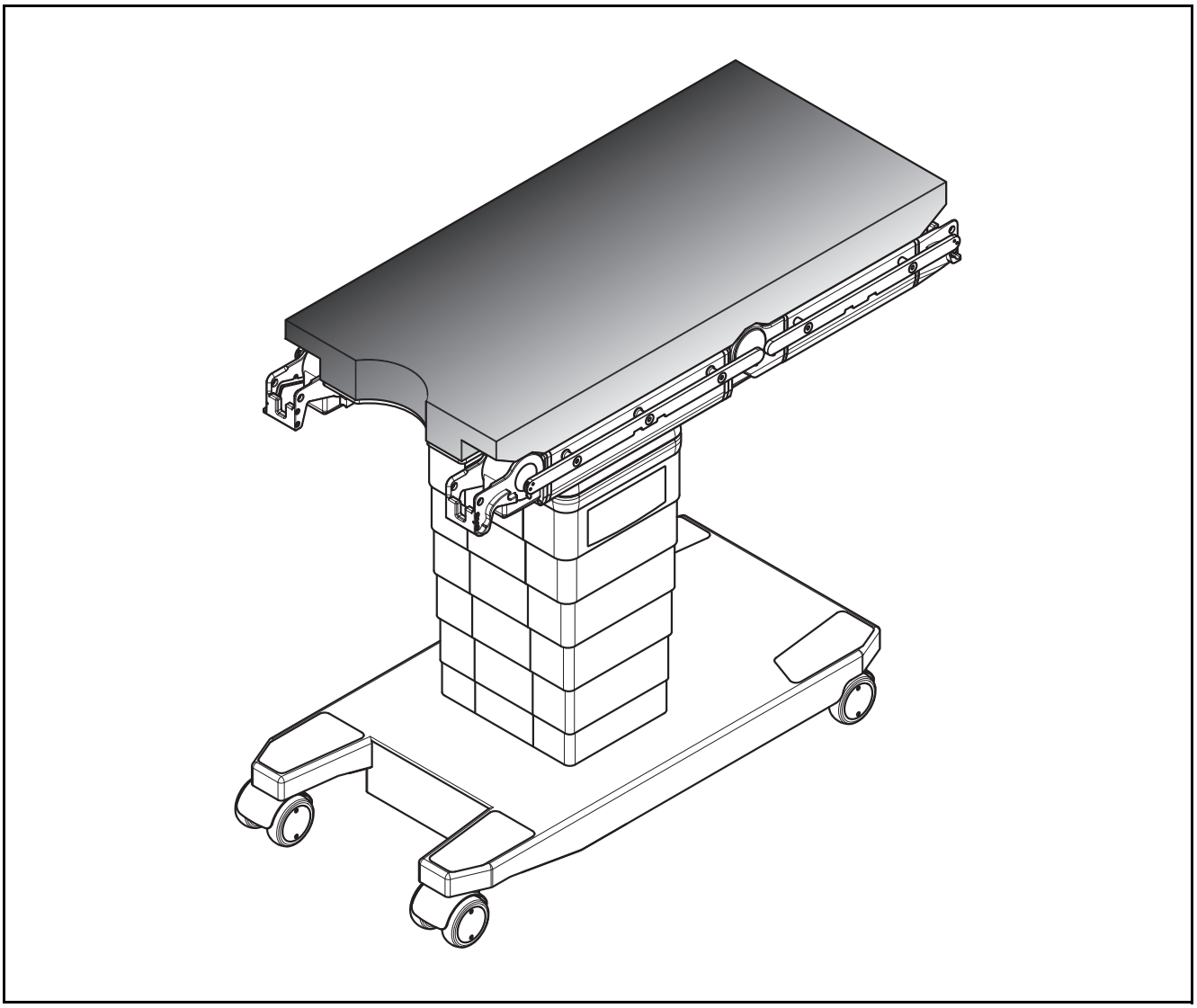
TruSystem 7000 Operating Table

Service Manual



Trumpf Medical™

Translation of the original German service manual

CE mark/Conformity: This is a Class I medical device according to the Council Directive 93/42/EEC concerning medical devices and is compliant with the Directive version currently in force at the time of product sale. The manufacturer declares the conformity of this product with the essential requirements of the Council Directive 93/42/EEC concerning medical devices according to Appendix I, as well as the implementation of an assessment procedure required for Class I product conformity under Appendix VII and documents this with the CE mark.

ETL mark: Intertek tested the product for the USA and Canada. ETL classification regarding risk of electric shock and fire, as well as mechanical hazard in accordance with ULSTD 60601-1; CAN/CSA STD C22.2 NO.601.1.

ETL CLASSIFIED
C ETL US
CLASSIFIED
Intertek
3186985

Manufacturer and distributor

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We at TRUMPF Medical are constantly improving our products.
Therefore, we reserve the right to make changes to the format, equipment, and technology at any time.

Within the bounds of the legal requirements, the manufacturer is responsible for the technical safety characteristics of this apparatus only if the maintenance, repairs, and modifications to this apparatus are performed by him or by someone appointed by him and in accordance with his instructions.

This service manual applies to the following sales units:

Product name	**Mat. no.**
TruSystem 7000	1841046
TruSystem 7000 V	1841050
Operating table TruSystem 7000 U	1604788
TruSystem 7000 (MBW)	1841048
TruSystem 7000 (MBW) V	1841082
Operating table TruSystem 7000 U (MB)	1604786
TruSystem 7000 (dV)	1841049
TruSystem 7000 (dV) V	1841083
Operating table TruSystem 7000 U (dV)	1723633
Cable remote control TS7000 U	1767067
Cable remote control TS7000 U (dV)	1798326

Contents

1 Important Information

This manual and any repair steps specified herein must be observed and followed. Repairs may be performed only by service technicians from TRUMPF Medizin Systeme GmbH + Co. KG or by personnel authorized, trained, and certified by Trumpf Medical. Only the repairs and settings listed in this guide or known to you from the appropriate service training by our technical support service may be performed! Repairs not covered in these instructions may be performed only after consulting with the TRUMPF Medical Technical Service department or by Trumpf Medical itself. Unauthorized or provisional repairs are not permitted even if a customer so requests. All laws, legal regulations and standards must be observed and adhered to. Only use original spare parts designated by Trumpf Medical as spare parts. Defective parts that are not in proper working order must be replaced with original spare parts, even if it is beyond the scope of the repair order! After repairs, return cables to their original installed positions and avoid any shearing or crushing. After each repair, recheck the electrical connections against the circuit diagram before performing a functional test. After all repairs or adjustments, a functional test has to be performed in accordance with these instructions or relevant standards. Recheck the position of the cables during and following all equipment positions!

Only deliver the device to the customer in the tested state with full functionality! Hand-over to the customer must be effected in writing with confirmation from the customer. The functionality must be demonstrated to the customer!

Proper use of and instructions on how to operate the TruSystem 7000 operating table can be found in the instruction manual.

The Service Center will be grateful for any corrections and tips for more efficient repairs. For questions or feedback please contact:

TRUMPF Medizin Systeme GmbH + Co. KG
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Carl-Zeiss-Str. 7 – 9
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Germany

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Fax	+49 3671 586-41175
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Internet	www.trumpfmedical.com

2 Safety information

2.1 Safety during repair work

- Important: use only stainless-steel screws of strength class 70 on the operating table! Comply with the torque specified for tightening screws.
- For all screws ≥ M4 without split lock washers, use a medium-strength screw locking agent. Notice, the agent can be loosened again by heating the screws with a hair dryer.
- Protective work clothing:
  Do not wear clothing which can become caught in the equipment. Shirt and jacket sleeves should be buttoned or rolled up.
  Tie or put up long hair.
  Tuck the ends of scarves, ties or shawls into your clothing or pin them down. Loose clothing can be a hazard!
  For activities that are moderately dangerous for the eyes, wear protective glasses (e.g., for soldering work or when removing taut springs and fasteners, when hammering in or hammering out pins or similar parts).
- Do not perform any activity that may put other people in danger or that can make the device a source of danger!
- Store removed housing and other machine parts in a safe place while working. Always store tools or removed parts in such a way that no one can stumble and fall over them. Keep the area around the device clean and tidy during and after maintenance work.
- Do not let any screws, nuts or other parts fall into the column. Immediately remove any parts that fell in. Parts that have not been removed can damage other components or cables when the OR table is adjusted. Important! The operating table may not be released to the customer if parts fell in and were not removed.
- After performing work, reattach protective devices and replace them if necessary. This includes, for example, covers, cable ties, cable mounts, cable shields, ground and potential conductor connections, and power connections. Check connection of equipotential bonding conductor/grounding cable in accordance with the applicable standards.

Protection against infection

- Risk of infection throughout the entire hospital! Follow all safety measures, behavioral rules and hygiene requirements. Follow the requirements of the medical facility for protecting against infection.

- Perform maintenance and repair work only on disinfected operating tables! Disinfection is performed by the medical facility.
- Perform work in the OR area only with appropriate authorization.
- Immediately seek a physician in the event of a complaint of possible infection. Inform the doctor you were working in a hazardous area - even if this was several months prior.

Prevention against infection

- Ask the doctor about possible risks and discuss how to avoid them in your work as a medical service technician.
- Get a hepatitis B inoculation if advised by a physician. A booster shot is required every 3 to 5 years. The incubation period for hepatitis B is 1 to 6 months!

2.2 Liability

TRUMPF Medizin Systeme GmbH + Co. KG **IS LIABLE ONLY** for reliable and proper functionality of the operating table **IF**

- installation, modification, and repairs are performed by Trumpf Medical service technicians or by personnel authorized, trained, and certified by Trumpf Medical.
- the operating table is used properly in accordance with the instruction manual.

2.3 Disposal

The products must be recycled in an environmentally friendly manner. Disposal, including that of individual parts, must be environmentally friendly, i.e., in accordance with the legal regulations currently in force. For information on proper disposal of old equipment, please contact either Technical Service at Trumpf Medical, your local sales representative, or the appropriate national agency Trumpf Medical will take back your old equipment or products that are defective or no longer used. For detailed information, contact Technical Service.

When decommissioning an operating table, the lithium ion batteries have to be removed by a Trumpf Medical service technician or a person trained and authorized by Trumpf Medical. Return removed and unusable batteries in suitable packaging to Trumpf Medical Technical Service. Important: the returns must be declared as hazardous materials of class 9/UN3480! Trumpf Medical will take responsibility for the environmentally proper disposal of the battery.

2.4 Explanation of Symbols

Important information in these repair instructions is marked with symbols and keywords. Keywords such as **DANGER, WARNING** or **CAUTION** indicate the level of danger involved. The symbols emphasize the message visually. Additional symbols can indicate injury hazards or danger to life and limb. The measures to prevent hazards must be observed.

DANGER
Risk of death (for example, electric shock)!

Refers to a directly imminent danger that will result in death or serious injuries if the appropriate precautionary measures are not taken.

WARNING
Risk of death!

Refers to a directly imminent danger that can result in death or serious injuries if the appropriate precautionary measures are not taken.

CAUTION
Risk of injury (for example, crushing)!

Refers to a possible danger that can lead to slight to moderate injury or damage to the equipment if the appropriate precautionary measures are not taken.

CAUTION
Risk of material damage!

Refers to a possible danger that can lead to equipment damage if the appropriate precautionary measures are not taken.

NOTE

Additional useful information and tips.

TEST

Performing functional tests, measurements and tests

ENVIRONMENT

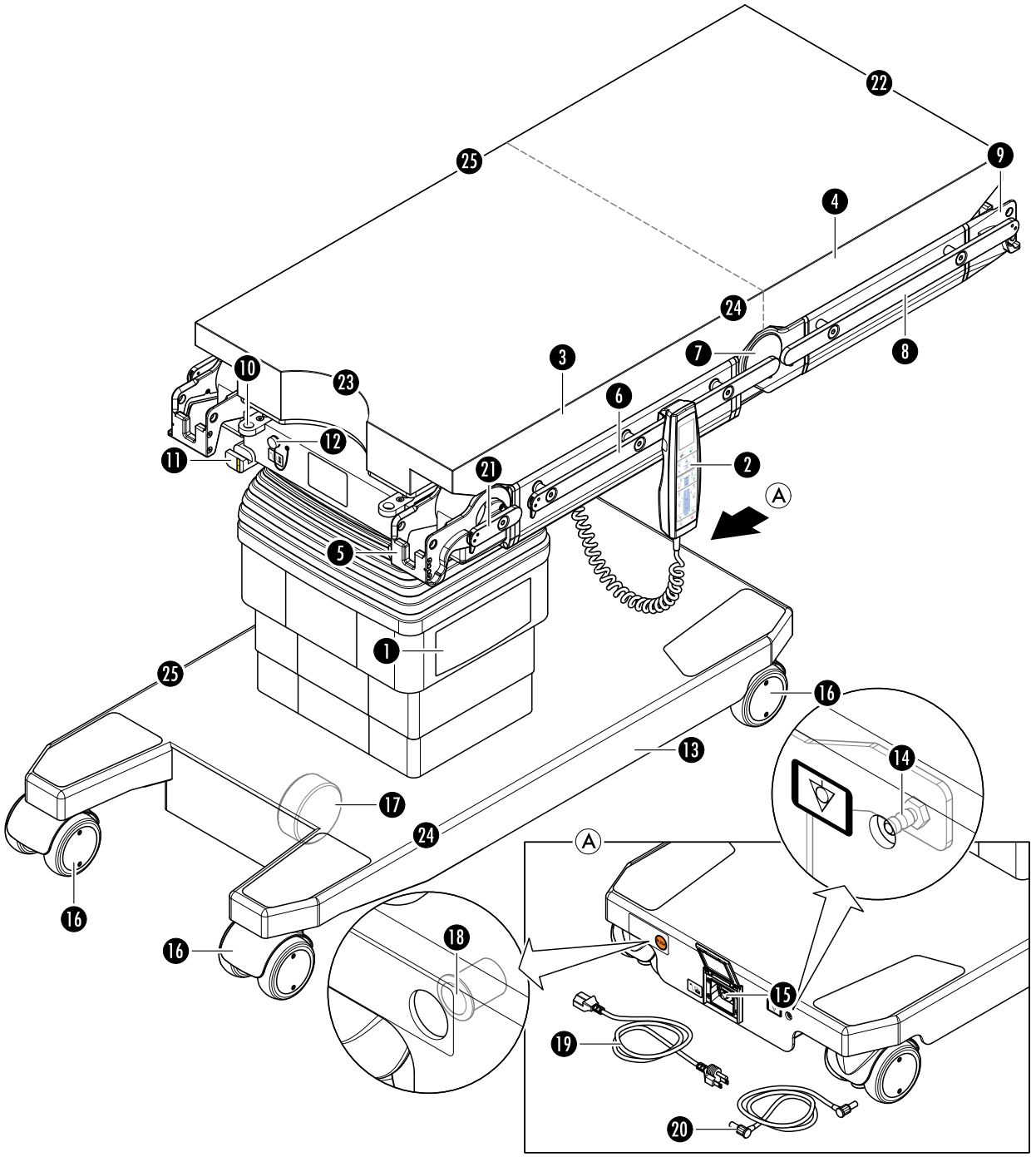
Information on environmentally friendly disposal.

2.5 Glossary

The following terms and abbreviations are used in these repair instructions:

Abbreviation	Explanation
#	Material number
Trumpf Medical	TRUMPF Medizin Systeme GmbH + Co. KG
Service Center	Technical Service at Trumpf Medical

2.6 Operating Table Overview



Key:

[1] Column keypad
[2] Remote control
[3] Seat section
[4] Back section
[5] Motorized leg section joint with fixture L
[6] Side rail for seat section
[7] Motorized back section joint

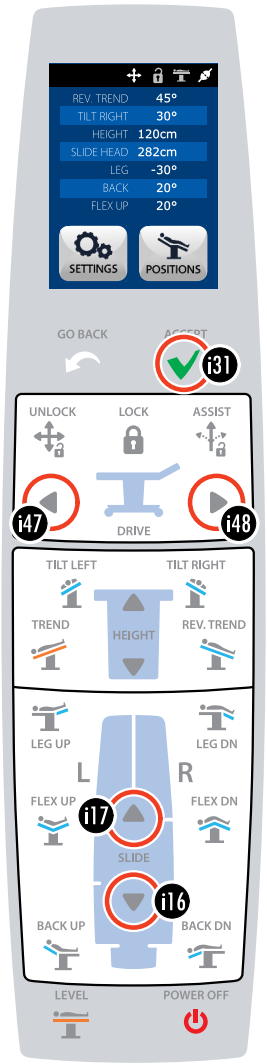
Key:

[8] Side rail for back section
[9] Fixture S
[10] Insertion opening for extension adapter
[11] Bayonet locking mechanism for extension adapter
[12] Control unit connector socket (head and foot end)
[13] Table base
[14] Connector pin for equipotential bonding cable
[15] Connector socket for power cable
[16] wheel
[17] Wheel for table base support (directional travel/drive mode)
[18] Key for emergency release of the table 's base (under the label)
[19] Power cable
[20] Equipotential bonding cable
[21] Side rail for leg section joint *1

[22] Head end
[23] Foot end
[24] Left side
[25] Right side

*1 not available on all operating table variants

3 Remote control ▸System◂ (secured) menu



The ▸System◂ menu and its functions are available only with the Cable remote control TS7000 U (#1767067).

The ▸System◂ (secured) submenu is located under the ▸Settings◂ menu item on the touch screen. This menu item is password-protected and accessible only to trained Trumpf Medical service technicians. The password, which is set at the factory, is available from the Service Center.

The individual numbers (0 to 9) of the password (code) are set using the arrow keys [i16]/[i17]/[i47] and [i48]. The cursor flashes at the currently active position. After it is entered, confirm the password with the OK [i31] key.

The ▸System◂ menu contains the following displays and settings:

- 1. ▸Display of HW/SW states◂
- 2. ▸Block RC on Key Error◂
- 3. ▸Show Key Error Status◂
- 4. ▸Component Test◂
- 5. ▸Motion Sensor Test◂
- 6. ▸Key test FB◂
- 7. ▸LED test FB◂
- 8. ▸Start Flash update◂
- 9. ▸Error memory exp.◂ (export)
- 10. ▸End emergency mode◂
- 11. ▸Reset or table◂
- 12. ▸Factory defaults◂
- 13. ▸Network address◂
- 14. ▸Set IR code◂
- 15. ▸Change password◂
- 16. ▸Acceleration sensor active◂
- 17. ▸Display battery state◂
- 18. ▸ISM parameters◂
- 19. ▸SD Card Info◂
- 20. ▸Show all messages◂
- 21. ▸Touch sensors inactive◂
- 22. ▸Test touch sensors◂
- 23. ▸Request service mode◂

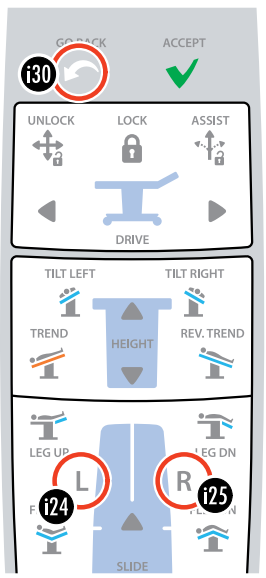
NOTE

Standby mode is switched off for most of the settings in the ▸Settings◂ menu.

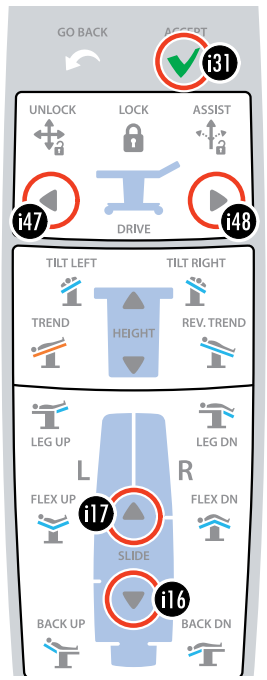
1. ▸Display of HW/SW states◂

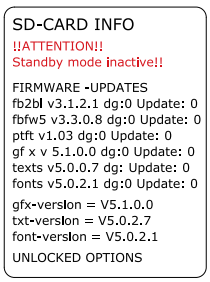
Line	Meaning
1	Hardware state and software version of the application
2	Serial number
3	Graphics version
4	Text version
5	Character set version
6	Upper shell software version
7	Boot loader version
8	Software package version
9	Motor controller and communication processor version (presently without function)
10	Radio module software version

2. ▸Block RC on Key Error◂
   This function can be used to block remote control if a keyboard error was determined.
3. ▸Show Key Error Status◂
   The display shows which key has an error.
4. ▸Component Test◂
   The menu item delivers a function test for all hardware components (touch, motion sensor). Do not make any settings using this menu item.
5. ▸Motion Sensor Test◂
   Tilt sensor test



6. ▸Key test FB◂
   The key test function lets you check the functionality of the individual keys on the remote control, except for the CANCEL [i30] key. The key functions are not executed. When the key is pressed, the (hexadecimal) key code is shown on the display. No key code is shown for the keys that select joints (L [i24]/R [i25]).
7. ▸LED test FB◂
   During the remote control LED test, the background illumination of the individual keys is tested in sequence.
8. ▸Start Flash update◂
   No function at this time.




SD-CARD INFO
!!ATTENTION!!
Standby mode inactive!!
FIRMWARE -UPDATES
fb2bl v3.1.2.1 dg:0 Update: 0
fbfw5 v3.3.0.8 dg:0 Update: 0
ptft v1.03 dg:0 Update: 0
gf x v 5.1.0.0 dg:0 Update: 0
texts v5.0.0.7 dg: Update: 0
fonts v5.0.2.1 dg:0 Update: 0
gfx-version = V5.1.0.0
txt-version = V5.0.2.7
font-version = V5.0.2.1
UNLOCKED OPTIONS

9. ▸Error memory exp.◂ (export)
   No function at this time.
10. ▸End emergency mode◂
    No function at this time.
11. ▸Reset or table◂
    No function at this time.
12. ▸Factory defaults◂
    No function at this time.
13. ▸Network address◂
    The LAN and W-LAN IP address is shown.
    Important: the IP address must be read from right to left. For example, 1.2.3.4 is shown on the display. The correct IP address is 4.3.2.1.
14. ▸Set IR code◂
    No function at this time.
15. ▸Change password◂
    You can change the password that has been set at the factory. The individual numbers (0 to 9) of the password are set using the arrow keys [i16]/[i17]/[i47] and [i48]. The cursor flashes at the currently active position. After it is entered, confirm the password with the OK [i31] key.
16. ▸Acceleration sensor active◂
    The motion sensor can be switched off if frequent shaking in the area prevents standby mode. The sensor for activating the remote control from the standby mode is active when the display is marked by an * (asterisk). To activate or deactivate the sensor press the OK [i31] key.
17. ▸Display battery state◂
    Function is not active.
18. ▸ISM parameters◂
    Function is not active.
19. ▸SD Card Info◂
    Menu item delivers information on the version of the text and graphics files.
20. ▸Show all messages◂
    The operating table transmits system information in an encrypted code to the remote control. The most important system information (e.g., error messages, status reports) are stored in plain text messages and are displayed on the remote control. Upon activating the ▸Show all messages◂ function, all system information is displayed. The ▸Show all messages◂ is

identified by an * (asterisk). To activate or deactivate (normal state) the messages press the OK [i31] key.

21. ▸Touch sensors inactive◂
    Function is not active.
22. ▸Test touch sensors◂
    Touch screen fields are shown on the display. When one of the individual fields is touched, the respective active field is marked yellow.
23. ▸Request service mode◂
    Activate service mode

4 Test procedures

As the medical products from Trumpf Medical are distributed worldwide, uniform guidelines for electrical retesting should be used.

According to the IEC 60601-1 standard, the limit values according to the CF classification apply when testing applied parts. Based on the design type, the Trumpf Medical electric operating tables only include one applied part of Class **B**.

Furthermore, the Trumpf Medical product-specific prescribed retests and safety checks are obligatory.

Germany	International
In Germany, initial testing and retesting of electrical devices are governed by the stipulations of the accident prevention regulation **BGV A3**. VDE 0751-1 is the standard that serves as the basis for retesting of electrical medical devices. Therefore in accordance with the VDE 0751-1 standard noted above, the specifications based on **IEC 60601-1** are definitive for Trumpf Medical medical devices.	In countries with different national legislation, the country-specific standards and guidelines for the retesting of electrical medical devices are mandatory.

All maintenance work must be carried out with the help of the maintenance protocol and take into consideration the spare or wearing parts list and the lubrication plan (see page 284).

Conduct a complete functional test after service work is completed.

5 Safety information for the batteries (#1533137)

The TruSystem 7000 operating table contains two lithium ion batteries. Because of their size (number of individual cells plugged in, amount of lithium contained), they are classified as a hazardous material. There is a risk of explosion in case of fire. As a result, there are legal ordinances regarding the handling, deployment, and installation of this type of battery.

The lithium ion batteries were specially developed by Trumpf Medical. An electronic protective circuit on a circuit board in the housing monitors the threshold values of the current / voltage data. The electrical connection outward is provided through a 7W2 D-Sub socket.

Technical parameters	Threshold values
Nominal voltage (3.7 V/cell)	40.7 V
Nominal capacity (2.4 Ah/cell)	4.8 Ah
Working voltage range	37 V...45.1 V
Shutdown undervoltage (2.4 V / cell)	approx. 26 V
Shutdown overvoltage (4.35 V / cell)	approx. 48 V
Shutdown overcurrent	20 A
Self-discharge current with active battery	180 µA
Max. discharge current over 2 min.	8 A
Max. continuous discharge current	4.8 A
Charging time with 3 A charge current	Approx. 3 hrs
Storage temperature range	- 40 °C to 80 °C
Max. internal battery temperature during discharge	60 °C
Max. internal battery temperature during charge	40 °C

Handling on/in operating table

Battery	Position
1	on power supply
2	on lift motor

The battery is connected using cable W134 (#1538234) for battery 1 and W172 (#1538235) for battery 2. The battery is directly connected or disconnected using the corresponding connection cable in the operating table. There are no special measures, such as a connection sequence on the power supply. A

battery is inserted or removed using the carrying strap. The column base has two diagonal guide pins that position the battery housing. Battery 1 is secured in place by a special plate (battery bracket_power supply). Battery 2 is secured by the spiral cable holder_rear.

Storage

For extended battery storage, the manufacturer recommends a charge level of approx. 40 %. For storage, as a guide Trumpf Medical recommends a no-load voltage of approx. 43 V for the battery charge level. Batteries should be stored in a cool, dry place.

Charging/ discharging

The batteries are usually charged in the operating table by the power supply. During external charging, the maximum charge current equals 2.4 A. The maximum charge voltage of 45.1 V may not be exceeded. A rechargeable battery is full (stops charging) when the charging current falls below 100 mA for at least 1 minute. The maximum discharge current for a period of no more than 2 minutes may not exceed 8 A. Important: there is no temperature monitoring when the battery is used as an external energy source. The threshold temperatures may not be exceeded.

To prevent hazards, the battery state is monitored automatically in the operating table.

Transport

All batteries must undergo a Trumpf Medical certified safety test before being released for general use. To ship a battery, use the manufacturer's special transport packaging (reusable packaging).

Disposal

Return removed and unusable batteries in suitable packaging to Trumpf Medical Technical Service. Important: the returns must be declared as hazardous materials of class 9/UN3480!
Trumpf Medical will take responsibility for the environmentally proper disposal of the battery.

6 Tools, measuring equipment and auxiliary tools

Tools

Basic tools and equipment
Allen wrench set
Open wrench set
Philips head screwdriver
Slotted screwdriver
Side cutting pliers
Nylon mallet
Thickness gauge
Retainer ring pliers
Circlip pliers with check screw
Slide hammer

Special tools	Mat. no.
Torque wrench 2 Nm to 150 Nm	
(T) Hook wrench for removing the leg section and back section motor	1484981

Measurement equipment

Product name	Mat. no.
Multimeter	
Cable tester	
Electronic spirit level	
Secutest SIII	
(T) TS7000 lifting drive gauge for setting the level position on the lifting motor	1729967
(T) TS7500 additional drives gauge for setting the level position on the auxiliary drive motor	1525774
(T) Belt tension meter to check the toothed belt tension on the Trendelenburg and longitudinal travel motor	1798264
Spring balance to check the toothed belt tension on the Trendelenburg and tilt motor	

Product name	Mat. no.
(T) Adjustment gauge TS7000 for aligning the two bars	1817764
(T) Overlay for joint setting TS7500 Support point for the spirit level (for example when setting the level position on the back section motors). At least two overlays are required.	1525777

Auxiliary tools

Product name	Mat. no.
(T) Multifunction tool for placing the operating table on its side	1553708
(T) Star wheel for placing the operating table on its side	1800121
(T) Spring balance bracket to set the toothed belt tension on the Trendelenburg and tilt motor	1814183
M6x60 retaining screw for securing the column cover	
M5 clamping screw to set the toothed belt tension on the Trendelenburg and tilt motor	
2 M8x60 retaining screws for securing the telescopic spindle during emergency adjustment of the lift	
Cable tie	

Lubricants and additives

Product name	Mat. no.
Terostat MS 939 adhesive	4150068
Loctite 5203 sealant	4150054
Loctite 5699 sealant	4150065
omniFIT 100 M screw locking agent	4150018
omniFIT 200 M screw locking agent	4150020
Thread-locking adhesive UHU weak fast	4150046
Thermal grease	4150060

Product name	Mat. no.
THERMOPLEX® ALN 250 EP low-viscosity gear grease	1483750
TURMOGREASE® LI 802 EP special grease	1473385
TURMOPLEX® L220 lubricant	4150047
PROFI-TURBO-GREASE® spray	4150050
Klüberlectric KR 44-120	1557674
Castrol Hyspin DSP 32 Mineral oil (viscosity of 32) for refilling the assembly	1864008
Care and cleaning kit	4159014
Alcohol (degreasing agent)	

7 Preparing the Operating Table

Before beginning repair work, prepare the operating table in accordance with the following work steps:

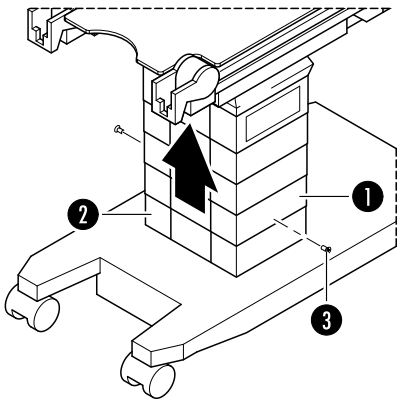
1. **CAUTION**
   Danger of infection!

   Note to hygienic conditions at the site, and clarify any questions concerning protection against infection with the doctor in charge. Before beginning work, have the medical facility confirm that all necessary measures for protection against infection have been implemented. Perform repairs only after protection of personnel against infection is ensured.
2. Lock operating table (brake)
3. Move to the level position on the operating table.
4. Remove all table components and accessories from the operating table and store them in a safe place.
5. Move the operating table to the most elevated position.
6. Disconnect the operating table from the external power supply (first remove the power cable plug from the insulated contact receptacle and then from the connection socket on the table base).
7. Remove the pad from the table top so that it is not damaged during repair.

During repair work, do not make any adjustments to the operating table except those explicitly specified.

8 Open and close the lower column cover

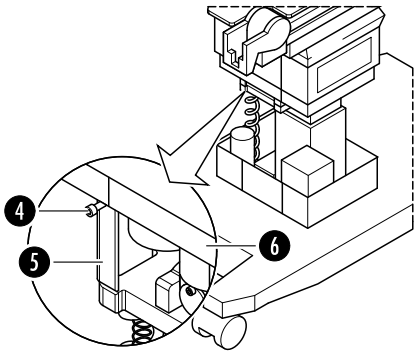
Open



1. Prepare the operating table (see chapter 7 on page 29).
2. Turn off the operating table.

> **CAUTION**
> **Risk of injury due to capacitor voltage.**
>
> Switch off repeatedly if needed. No LEDs may be illuminated on the column keypad!

3. Disconnect the lowest column cover [1] from the pot [2] (2 screws [3]).



4. Carefully slide the column cover upward, tighten the retaining screw [4] on the Trendelenburg assembly [5], and place the column cover [6] on the retaining screw.

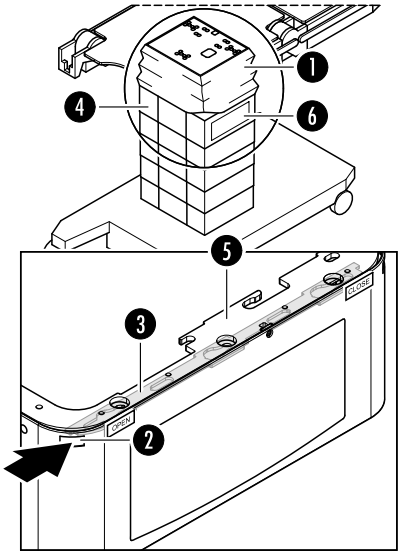
Close

1. Grasp the column cover, remove the holding screw from the Trendelenburg assembly and guide the cover carefully downward.
2. Install the lowest column cover on the pot (2 screws).
3. Put on the pad.
4. Switch on the operating table at the column keypad.
5. Connect the operating table to the external power supply.

> **TEST**
>
> Perform a function test.

9 Open and close the top column cover

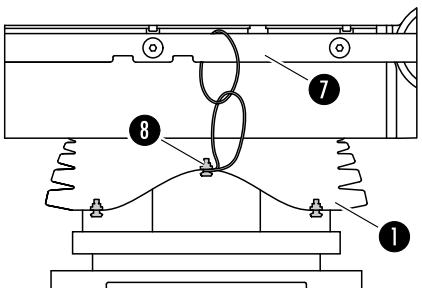
Open



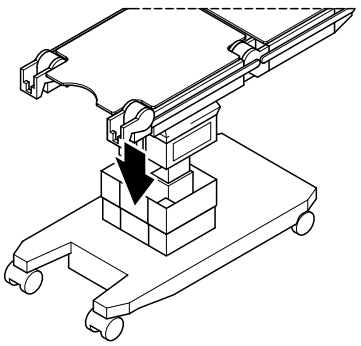
1. Prepare the operating table (see chapter *7* on page 29).
2. Turn off the operating table.

> **CAUTION**
> **Risk of injury due to capacitor voltage.**
>
> Switch off repeatedly if needed. No LEDs may be illuminated on the column keypad!

3. Detach the bellows [1] from the cover [4]. To do this, fold the corner of the bellows up slightly to reveal the opening in the column cover. At the left and the right in the *OPEN* opening [2] push the slider plate [3] toward *CLOSE*.



4. Carefully guide the bellows [1] upward and secure it.
   For example, secure the bellows [1] to the side rail [*7*] using cable ties: Attach a cable tie to a loop and around the tightening bolts [8] in the bellows. Pull a second cable tie through the first and attach it to the side rail [*7*].
5. Unscrew the right top metal panel [4] (without the column keypad) from the frame [5] (3 screws).
6. Important: when removing the metal panel, the remaining panels may slide down. Unscrew the top right metal panel [4] from the left metal panel [6] (2 screws).
7. When the top metal panel is taken off, the remaining panels may slide down. Remove the top metal panel and carefully move it downward together with the remaining panels. Place the right top metal panel off to the side.



Close

1. Guide the panel upward, attach it to the left metal panel, and secure it manually.
2. Insert the right top metal panel and attach to the frame (3 screws).
3. Attach the top two metal panels to one another (2 screws).
4. Slide the bellows down into the frame.

5. At the left and the right in the *CLOSE* opening push the slider plate toward *OPEN*. Make sure the bellows frame connection is closed.
6. Put on the pad.
7. Switch on the operating table at the column keypad.
8. Connect the operating table to the external power supply.

 **TEST**
Perform a function test.

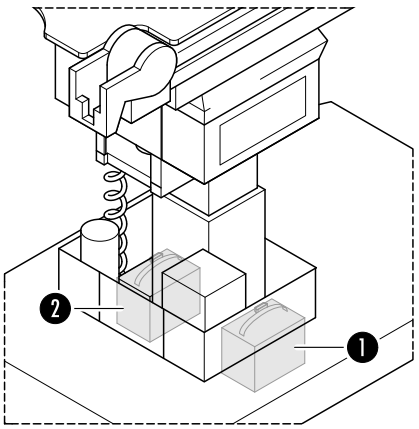
10 Disconnecting and reconnecting the internal power supply on the operating table

Disconnect the power supply

1. Prepare the operating table (see chapter 7 on page 29).
2. Turn off the operating table.

CAUTION **Risk of injury due to capacitor voltage.**
Switch off repeatedly if needed. No LEDs may be illuminated on the column keypad!

3. Open the lower column cover (see chapter 8 on page 30).
4. Pull the power supply plug from battery 1 [1] and battery 2 [2].



Reconnect the power supply

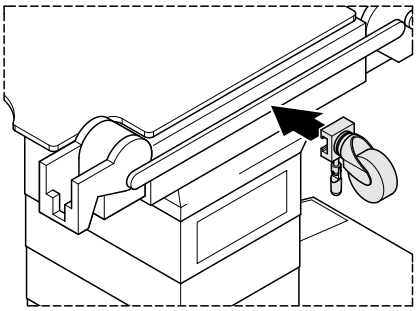
1. Connect the power supply plugs to battery 1 and battery 2 (see the circuit diagram on page 295). The plug must lock in.
2. Close the column cover (see chapter 8 on page 30).
3. Put on the pad.
4. Switch on the operating table at the column keypad.
5. Connect the operating table to the external power supply.

TEST
Perform a function test.

11 Emergency adjustment for the lift

The column cannot be moved upward if there is a defect in the lift motor. A manual emergency adjustment has to be performed to access the column pot. Emergency adjustment is not possible if the telescopic spindle is defective.

1. Prepare the operating table (see chapter 7 on page 29).
2. Remove the column cover (see chapter 14.1 on page 75).
3. Secure the star wheel (#1800121) on the left side rail [1] of the seat section.



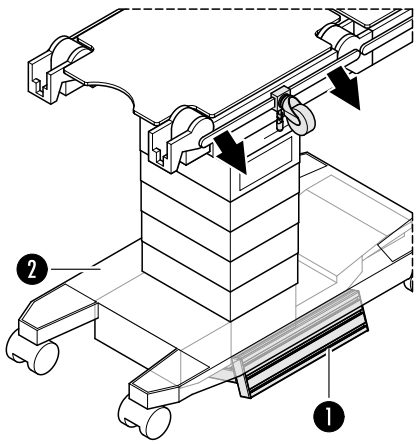
4. **CAUTION**
   Risk of material damage!

   The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).
5. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).

   CAUTION
   Risk of injury due to electric shock!

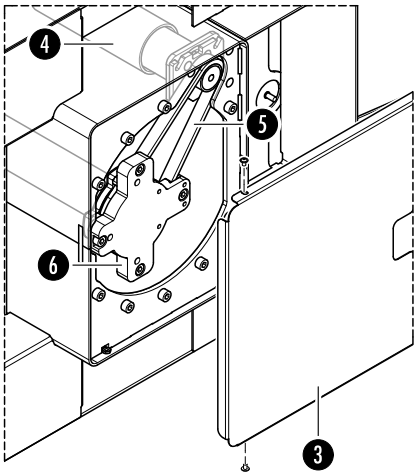
   The battery plugs cannot be disconnected when the operating table is set in the lowest lifting position. In this case, work must be done under voltage. Make sure that no functions (e.g., lift, tilt) are carried out on the operating table.



6. Slide the multifunction tool [1] mounted as a T under the table base [2].
7. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points down) and set it on the star wheel.

   After placing the table on its side, do not activate the hydraulics system to prevent air from seeping into the hydraulic hoses.

[1] Side with the column keypad



8. Remove the subfloor cover [3] from the table base (4 screws).
9. Unscrew the lift motor assembly [4] from the column base (4 screws with washers).

   Note that simply relaxing the toothed belt tension is not enough; the toothed belt cannot be removed from the pinion of the lift motor if the lift motor is built in.
10. Pull the lift motor assembly [4] out of the toothed belt [5] and place it in the column pot. If necessary, move the assembly back and forth until the toothed belt [5] can be removed from the pinion.
11. Remove 4 screws from the bearing shell [6] of the telescopic spindle.
12. Carefully move the toothed belt manually in the counterclockwise direction until the bearing shell has moved a bit out of the column.
13. Secure the bearing shell to the floor plate using two M8x60 screws.
14. Using your hand, carefully move the toothed belt [5] counterclockwise. The table top moves upwards.

    The table top has to be moved at least 15 cm upwards when the column is fixed at the lowest lifting position. Only then are the battery plugs and spindle attachment accessible.
15. Disconnect the power plug from battery 1 and battery 2 if the power supply is still connected.
16. Restore the telescopic spindle to its original assembled position.
    a) Remove both screws securing the bearing shell.
    b) Carefully move the toothed belt manually in the clockwise direction until the bearing shell rests on the floor plate.
    c) Attach the bearing shell to the floor plate (4 screws).
17. Replace the lift motor assembly (see chapter 15.6 on page 115).
18. Install the subfloor cover [3] on the table base (4 screws).
19. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
20. Remove the multifunction tool.

21. Remove the toothed wheel.

 TEST
Perform a function test.

12 Mechanical parts of the table top

CAUTION
Risk of injury!

Always store tools and removed components securely and make sure no one can trip or fall over them.

CAUTION
Risk of material damage!

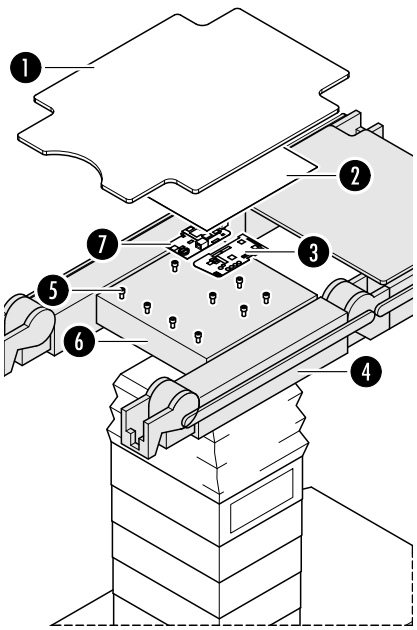
Do not let screws, nuts or other parts fall into the operating table! Immediately remove any parts that fell in. Parts that have not been removed can damage other components or cables when the OR table is adjusted. The operating table may not be released to the customer if parts fell in and were not removed.

For all screws ≥ M4 without split lock washers, use a medium-strength screw locking agent.

After replacing a gear, always reset the level position of the motor and update the software.

12.1 Table top

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate [1] from the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the cover [2] from the center box (see chapter 12.3 on page 41).
5. Be sure to note the cable routing.
   Disconnect all plugs from the motor controller circuit board [3] and remove the circuit board [3] from the center box [6] (3 screws). Note the cable adapter for the ISM module [2)]. Lift the circuit board slightly and pull the cable adapter plug from the underside of the circuit board.
6. Be sure to note the cable routing.
   Disconnect all plugs from the communication processor circuit board [7] and remove the circuit board [7] from the center box [6] (4 screws).
7. Carefully push cables W164, W173 and sensor cable downward out of the center box.
8. **CAUTION**
   Risk of injury!
   Do not lean on the table top if the screws have been removed. The table top can fall from the column due to the load. Have a second person support the table top.

   Release the table top [4] from the column: Remove 10 screws [5] from the center box [6].
9. Workplace safety: Due to the heavy weight of the table top, take care not to strain your back when lifting and putting it down! A second person is required for lifting and putting down the table top.
   Carefully lift the table top off the column and place it down on a flat, soft surface.

Assembly

1. Workplace safety: Due to the heavy weight of the table top, take care not to strain your back when lifting it! A second person is required for lifting and installing the table top.
   Place the table top on the column can attach the center box to the mounting plate of the column (10 screws, note the different lengths). When placing the table top, orient it to the openings

[2)] not available on all operating table versions

in the center box. They align with the openings in the mounting plate.

2. Route cables W164, W173, the cable adapter [2], and sensor cable upward through the opening into the center box.
3. Check the insulating foil of the motor controller circuit board/ communication processor in the center box and replace it if damaged.
4. Insert the cable adapter plug [2] into the socket on the underside of the motor controller circuit board.
5. Insert and install the motor controller circuit board in the center box (3 screws).
6. Insert and install the communications controller circuit board in the center box (4 screws).
7. **CAUTION**
   Risk of material damage due to incorrect connector pin assignment!

   Do not interchange the connectors on the circuit board. Follow the circuit diagram on page 295.

   Restore the original cable routing.

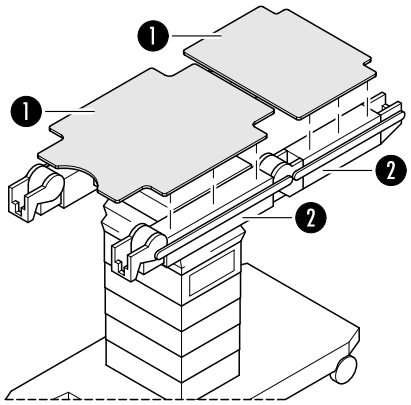
   Connect all the plugs to the motor controller circuit board and the communication processor circuit board.
8. Attach the cover to the center box (see chapter 12.3 on page 41).
9. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
10. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
11. Put on the pad.

TEST

Perform a function test.

12.2 Pad plate

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Note attachment position of pad plate!
   Remove the pad plate [1] from the bars [2] (6 screws).
   The bars are connected to one another through the pad plate of the seat section and back section. After disassembly of both pad plates the left bar moves freely, and can be moved independent of the right bar. Even minimum differences between the right and left bar can prevent the table components from locking into the coupling points later. For this reason the bars have to be aligned again as soon as both pad plates are removed.

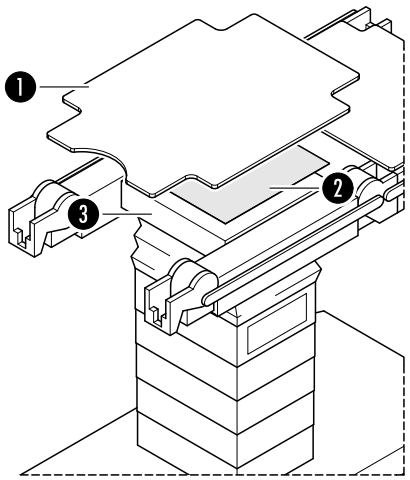
Assembly

1. Align the bars (see chapter 24.2 on page 265). The adjustment is required only when both pad plates are removed.
2. Place the pad plate back in its original mounting position.
   Place the pad plate onto the bars and install (6 screws).
3. Put on the pad.

TEST
Perform a function test.

12.3 Center box cover

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate [1] from the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the cover [2] from the center box [3] (20 screws).

Assembly

1. Attach the cover to the center box (20 screws).
2. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
3. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
4. Put on the pad.

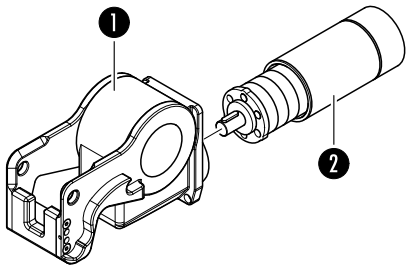
TEST
Perform a function test.

12.4 Leg section gear box

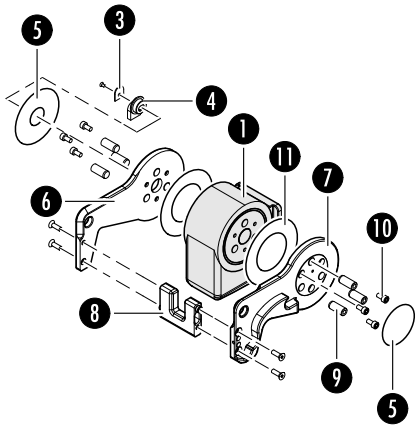
12.4.1 Operating table without side rail at the joint

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the drive unit of the leg section (see chapter 13.4 on page 61).



5. Pay particular attention to the installation position of the motor and to the feather key.
   Release the ring nut on the motor [2] with a hook spanner wrench and pull the motor [2] out of the gear box [1].



6. Remove the cover plate [3] from the inner coupling plate [6] (1 screw) and pull the cable pass-through [4] out of the coupling plate [6].
7. Remove the cover foil [5] from the internal and external coupling plate.
8. Disconnect the internal [6] or external [7] coupling plate from the coding plate [8] (2 screws).
9. Remove 3 pins [9] each from both coupling plates with the pin remover.
10. Important: there is one sliding disk [11] between each coupling plate [6]/[7] and the gear box [1]. Do not lose the sliding disk.
    Remove the internal [6] and external [7] coupling plates from the gear box [1] (3 screws each [10]). Pull out the sensor cable completely.

Assembly

1. Remove any adhesive residue from both coupling plates and degrease.
2. Check the sliding disks and replace them if worn or damaged.
3. Pull the sensor cable through the removed parts (sliding disk - gear box - sliding disk - inner coupling plate).
4. Press the sliding disk against the gear box and mount both coupling plates to the gear box (3 screws each). Make sure the sensor cable does not get pinched.
5. Tap the 3 pins on each of the coupling plates into the gear box.

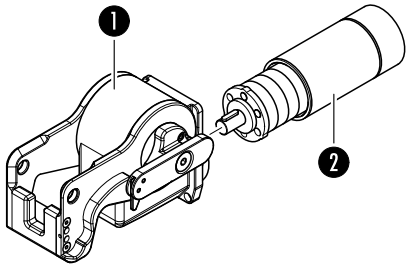
6. Mount the coupling plate on the coding plate (2 screws).
7. Apply a new self-adhesive cover foil to each coupling plate. Before this, pull the sensor cable through the cover foil on the inner coupling plate.
8. Pull the sensor cable through the cable pass-through.
9. Carefully pull the sensor cable taut and mount the cover plate with the cable pass-through onto the inner coupling plate (1 screw).
10. Use a spirit level to level the coupling point (joint) on the gear box.
11. Make sure to re-install the motor in its original position.
    Align the lugs on the motor flange with the recesses on the gear box (connection sockets on the motor are on top), rotate the motor shaft until the feather key lines up with the slot in the gear box, precisely insert the key into the slot of the motor shaft, and then slide the motor into the gear box up to the end stop.
12. Tighten the ring nut on the motor and fixate the connection with screw coating (#4150041) (at least three application points evenly distributed across the diameter.)
13. Attach the leg section drive unit to the seat section bar (see chapter 13.4 on page 61).
14. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
15. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
16. Put on the pad.
17. Calibrate the leg section motor (CAN test center). See chapter 24.3 on page 266.
18. Update the software (see the software description from the CAN test center).

 **TEST**
Perform function test and final check.

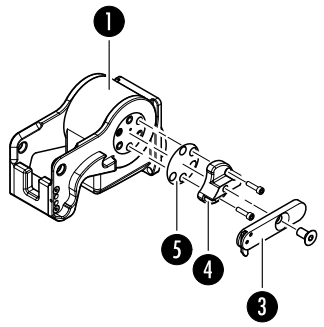
12.4.2 Operating table with side rail at the joint

Disassembly

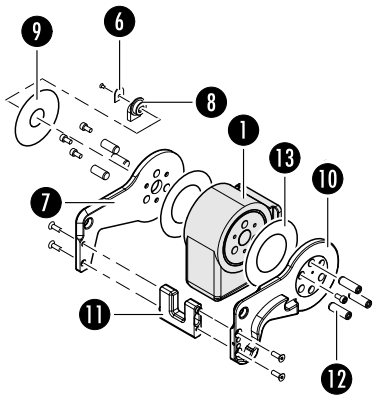
1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the drive unit of the leg section (see chapter 13.4 on page 61).
5. Pay particular attention to the installation position of the motor and to the feather key.
   Release the ring nut on the motor [2] with a hook wrench and pull the motor [2] out of the gear box [1].



6. Remove the side rail [3] from the gear adapter [4] (1 screw).
7. Remove 2 screws from the gear adapter [4] and remove the gear adapter [4] with a slide hammer from the outer coupling plate.
8. Remove the cover foil [5] from the external coupling plate.



9. Remove the cover plate [6] from the inner coupling plate [7] (1 screw) and pull the cable pass-through [8] out of the coupling plate [7].
10. Remove the cover foil [9] from the internal coupling plate.
11. Disconnect the internal [7] or external [10] coupling plate from the coding plate [11] (2 screws).
12. Remove 3 pins [12] each from both coupling plates with the pin remover.
13. Important: there is one sliding disk [13] between each coupling plate [7]/[11] and the gear box [1]. Do not lose the sliding disk.
    Remove the internal [7] and external [10] coupling plates from the gear box [1] (each with 3 screws inside and 1 screw outside). Pull out the sensor cable completely.



Assembly

1. Remove any adhesive residue from both coupling plates and degrease.

2. Check the sliding disks and replace them if worn or damaged.
3. Pull the sensor cable through the removed parts (sliding disk - gear box - sliding disk - inner coupling plate).
4. Press the sliding disk against the gear box and mount both coupling plates on the gear box (each with 3 screws inside and 1 screw outside). Make sure the sensor cable does not get pinched.
5. Tap the 3 pins on each of the coupling plates into the gear box.

   Attention, tap the longer pins on the outer coupling plate into the gear box. The pins must project about 1 cm out of the coupling plate.
6. Mount the coupling plate on the coding plate (2 screws).
7. Apply a new self-adhesive cover foil to each coupling plate. Before this, pull the sensor cable through the cover foil on the inner coupling plate.

   The cover foil with perforations is for the outer coupling plate. Pay attention to the position. The screw on the coupling plate must be covered.
8. Pull the sensor cable through the cable pass-through.
9. Carefully pull the sensor cable taut and mount the cover plate with the cable pass-through onto the inner coupling plate (1 screw).
10. Place the gear box adapter on the gear box (outside) and tap it carefully with a plastic hammer until the gear box adapter is flush with the coupling plate.
11. Turn in 2 screws on the gear box adapter.
12. Fasten the side rail to the gear box adapter (1 screw).
13. Use a spirit level to level the coupling point (joint) on the gear box.
14. Make sure to re-install the motor in its original position.

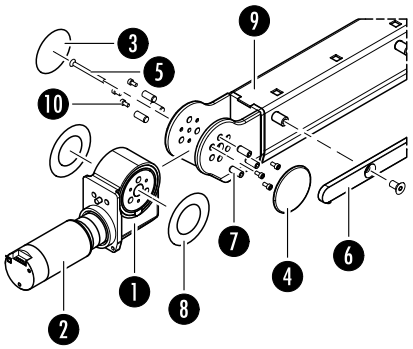
    Align the lugs on the motor flange with the recesses on the gear box (connection sockets on the motor are on top), rotate the motor shaft until the feather key lines up with the slot in the gear box, precisely insert the key into the slot of the motor shaft, and then slide the motor into the gear box up to the end stop.
15. Tighten the ring nut on the motor and fixate the connection with screw coating (#4150041) (at least three application points evenly distributed across the diameter).
16. Attach the leg section drive unit to the seat section bar (see chapter 13.4 on page 61).
17. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).

18. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
19. Put on the pad.
20. Calibrate the leg section motor (CAN test center). See chapter 24.3 on page 266.
21. Update the software (see the software description from the CAN test center).

 TEST
Perform function test and final check.

12.5 Back section gear box

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40).
4. Remove the pad plate of the back section (see chapter 12.2 on page 40).
5. Remove the drive unit of the back section (see chapter 13.6 on page 65).
6. Pay particular attention to the installation position of the motor and to the feather key.
   Release the ring nut on the motor [2] with a hook spanner wrench and pull the motor [2] out of the gear box [1].
7. Remove the cover foil [3] on the inner joint.
8. Remove the side cover [4] from the outer joint (1 screw [5] on the inside of the joint).
9. Remove the side rail [6] from the back section bar [9] (2 screws).
10. Remove 3 pins [7] each from the inside and outside on the joint with the pin remover.
11. Important: there is one sliding disk [8] between the back section bar [9] and the gear box [1]. Do not lose the sliding disk.
    Remove the back section bar [9] from the gear box [1] (3 screws each [10]).

Assembly

1. Remove any adhesive residue from the back section bar and degrease.
2. Check the sliding disks and replace them if worn or damaged.
3. Press the sliding disk against the gear box and mount the back section bar to the gear box (3 screws each).
4. Tap 3 pins each inside and outside on the back section bar into the gear box.
5. Install the side cover of the outer joint (1 screw on the inside of the joint).
6. Glue a new self-adhesive, cover foil to the joint on the inside of the back section bar.
7. Mount the standard rail to the back section bar (2 screws).
8. Make sure to re-install the motor in its original position.

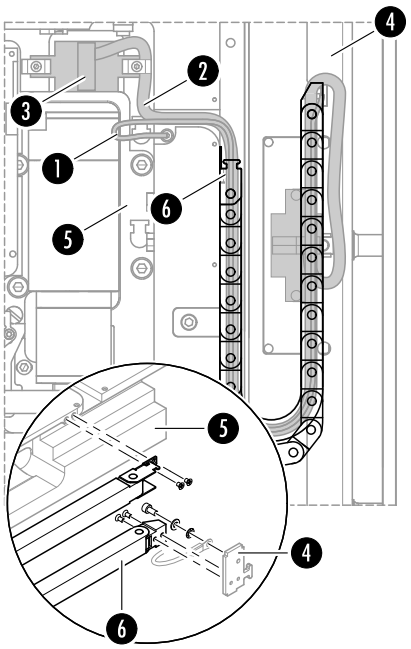
Align the lugs on the motor flange with the recesses on the gear box (connection sockets on the motor are on top), rotate the motor shaft until the feather key lines up with the slot in the gear box, precisely insert the key into the slot of the motor shaft, and then slide the motor into the gear box up to the end stop.

9. Tighten the ring nut on the motor and fixate the connection with screw coating (#4150041) (at least three application points evenly distributed across the diameter.)
10. Attach the back section drive unit to the seat section bar (see chapter 13.6 on page 65).
11. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
12. Calibrate the back section motor (CAN test center). See chapter 24.4 on page 266.
13. Align the bars (see chapter 24.2 on page 265).
14. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
15. Attach the pad plate to the back section bars (see chapter 12.2 on page 40).
16. Put on the pad.
17. Update the software (see the software description from the CAN test center).

 **TEST**
Perform function test and final check.

12.6 Energy chain

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the cover from the center box (see chapter 12.3 on page 41).
5. Be sure to note the cable routing.
   Remove protective conductor_24 [1] from the center box [4] and from the inside of the bar [4] (each with 1 screw with 2 washers).
6. Disconnect the leads of cable W166/W167 [2] from the plug of the CAN distributor circuit board [3] (center box).
7. Be sure to note the cable routing.
   Unfasten ground wire_24 [1] and cables W166/W167 [2] from the center box [5] to the end of the energy chain on the inside of the bar [4].
8. Remove the energy chain [6] (chain connection) from the center box [5] and the inside of the bar [4] (2 screws each).
9. Lay the energy chain [6] straight and carefully pull all cables out of the energy chain.

Assembly

1. Draw a wire pull through the energy chain.
2. Fasten the cable W166/W167 and the ground wire_24 to the wire pull.
3. Straighten the energy chain and carefully pull the wire pull with the cables through the energy chain without twisting.
4. Pull the cables in the energy chain equally taut. Pull the excess end of the cable out of the energy chain according to the cable routing.
5. Remove the cables from the pull wire.
6. Place the energy chain back in its original mounting position!
   Mount the energy chain (chain connection) on the center box and the inside of the bar (2 screws each).
7. Attach ground wire_24 to the center box and the inside of the bar (each with 1 screw with 2 washers).
8. Lay cable W166/W167 in the center box.

9. Attach the leads of cable W166/W167 to the plug on the CAN distributor circuit board (center box) (see circuit diagram on page 295).
10. Restore the original cable routing. Note the shield support.
    Fasten ground wire_24 and cables W166/W167 from the center box to the end of the energy chain on the inside of the bar.
11. Attach the cover to the center box (see chapter 12.3 on page 41).
12. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
13. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
14. Put on the pad.

 **TEST**
Perform function test and final check.

12.7 Linear guide

Repairs on the linear guide are not performed at the customer's site. The operating table is completely replaced. Replacement operating tables are available through Trumpf Medical Technical Service. Securely package the operating table and send it back to Technical Service.

12.8 Toothed rack

Repairs on the toothed rack are not performed at the customer's site. The operating table is completely replaced. Replacement operating tables are available through Trumpf Medical Technical Service. Securely package the operating table and send it back to Technical Service.

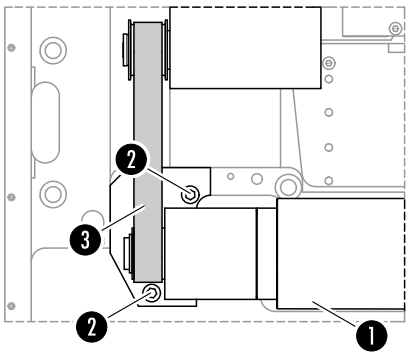
12.9 Longitudinal travel toothed belt

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).

> **CAUTION**
> **Risk of personal injury and property damage due to uncontrolled movement!**
>
> The table top must be in horizontal position! If the table top is tilted, the table top will independently slide to the mechanical end stop while removing the drive!

2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the cover from the center box (see chapter 12.3 on page 41).
5. Loosen the toothed belt tension. Loosen the attachment screws [2] on the motor [1].
6. Take the toothed belt [3] from the toothed belt pulley on the gear and on the motor.



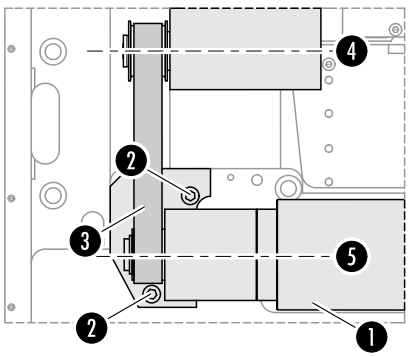
Assembly

1.

> **CAUTION**
> **Risk of material damage to toothed belt due to incorrect installation!**
>
> The teeth on the toothed belt pulley and on the toothed belt must securely engage (not tooth on tooth).

Precisely place the toothed belt around the toothed belt pulley on the gear box and motor.

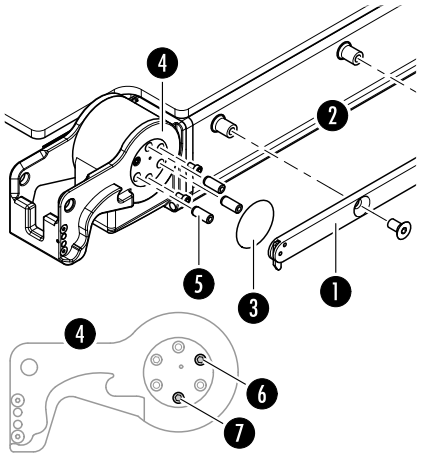
2. Tighten the toothed belt [3]:
   a) Attach the longitudinal travel motor to the center box (2 screws).
   b) Check the toothed belt tension with a belt tension meter. The value must be 140 Hz (±5 Hz). Slide the motor if the value is different (loosen the attachment screws [2] on the motor).
   c) Attach the longitudinal travel motor [1] in the center box of the table top (2 screws [2]). The axle [5] of the motor must be parallel to the shaft [4] of the gear box.
   d) Check the toothed belt tension and reset if there are differences. The value on the belt tension meter must be 140 Hz (±5 Hz).
3. Calibrate the longitudinal travel motor (CAN test center) See chapter 24.5 on page 267.



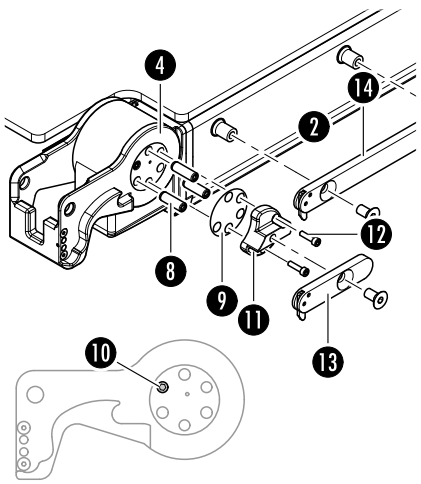
4. Update the software (see the software description from the CAN test center).
5. Attach the cover to the center box (see chapter 12.3 on page 41).
6. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
7. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
8. Put on the pad.

 **TEST**
Perform recheck according to IEC 60601-1; perform function test and final check.

12.10 Retrofit kit for the side rail of the leg section joint



1. Prepare the operating table (see chapter 7 on page 29).
2. Remove the side rail [1] from the seat section bar [2] (3 screws).
3. Remove the cover foil [3] from the external coupling plate [4].
4. Remove any adhesive residues from the coupling plate [4] and degrease.
5. Remove 3 pins [5] from the outer coupling plate [4] with the pin remover.
6. Remove 2 screws [6]/[7] from the coupling plate [4]. Do NOT remove the upper screw in the direction of the foot end!



7. Tap the 3 pins [8] out of the retrofit kit on the outer coupling plate [4] into the gear box. The pins must project about 1 cm out of the coupling plate.
8. Stick the self-adhesive cover foil [9] from the retrofit kit to the coupling plate [4].
   Pay attention to the position. The screw [10] on the coupling plate must be covered.
9. Place the gear box adapter [11] on the gear box and tap it carefully with a plastic hammer until the gear box adapter is flush with the coupling plate.
10. Remove 2 screws [12] from the retrofit kit on the gear box adapter [11].
11. Secure the short side rail [13] from the retrofit kit to the gear box adapter [11] (1 screw).
12. Secure the long side rail [14] from the retrofit kit to the gear box adapter [2].
13. Repeat the steps 1. to 12. for the other side of the operating table.

TEST
Perform a function test.

13 Electrical parts of the table top

CAUTION
Risk of personal injury due to conductive parts.

Use extreme caution and care when repairing electrical components. Secure the work area from access by others.

CAUTION
Risk of injury!

Always store tools and removed components securely and make sure no one can trip or fall over them.

CAUTION
Risk of material damage!

Do not let screws, nuts or other parts fall into the operating table! Immediately remove any parts that fell in. Parts that have not been removed can damage other components or cables when the OR table is adjusted. The operating table may not be released to the customer if parts fell in and were not removed.

For all screws ≥ M4 without split lock washers, use a medium-strength screw locking agent.

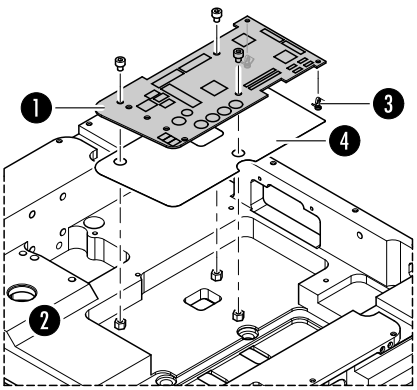
After replacing motors, always reset the level position and update the software.

13.1 Motor controller circuit board

Important: assembly requires serial number. Note chapter 27 on page 276.

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the cover from the center box (see chapter 12.3 on page 41).
5. Be sure to note the cable routing.
   Remove all plugs from the motor controller circuit board [1].
6. Remove the motor controller circuit board [1] from the center box [2] (3 screws). Note the cable adapter for the ISM module [3)]. Lift the circuit board slightly and pull the cable adapter plug from the underside of the circuit board.
7. Remove the spacer [3] from the circuit board.



Assembly

1. Check the insulating foil [4] of the motor controller circuit board [1] in the center box and [2] replace it if damaged.
2. Insert the cable adapter plug [3)] into the socket on the underside of the motor controller circuit board.
3. Insert and install the motor controller circuit board in the center box (3 screws).
4. **CAUTION**
   Risk of material damage due to incorrect connector pin assignment!

   Do not interchange the connectors on the motor controller circuit board. Follow the circuit diagram on page 295.

   Restore the original cable routing.
   Connect all the plugs to the motor controller circuit board.
5. Attach the cover to the center box (see chapter 12.3 on page 41).
6. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).

[3)] not available on all operating table versions

7. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
8. Put on the pad.
9. Calibrate the tilt sensor (see the software description from the CAN test center). Only necessary when installing a new motor controller circuit board.
10. Configure the motor controller (only necessary when installing a new motor controller circuit board). See the software description from the CAN test center.
11. Update the software (see the software description from the CAN test center).

TEST

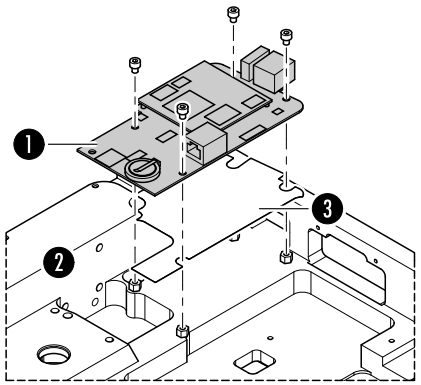
Perform recheck according to IEC 60601-1; perform function test and final check.

13.2 Communications controller circuit board

Important: assembly requires serial number. Note chapter 27 on page 276.

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the cover from the center box (see chapter 12.3 on page 41).
5. Be sure to note the cable routing.
   Remove all plugs from the communications controller circuit board [1].
6. Remove the communications controller circuit board [1] from the center box [2] (4 screws).



Assembly

1. Check the insulating foil [3] of the communications controller circuit board [1] in the center box and [2] replace it if damaged.
2. Insert and install the communications controller circuit board in the center box (4 screws).
3. Restore the original cable routing.
   Connect all plugs on the communication controller circuit board (see circuit diagram on page 295).
4. Attach the cover to the center box (see chapter 12.3 on page 41).
5. Mount the pad plate on the seat section bars (6 screws).
6. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
7. Put on the pad.
8. Calibrate the tilt sensor (see the software description from the CAN test center).
9. Update the software (see the software description from the CAN test center).

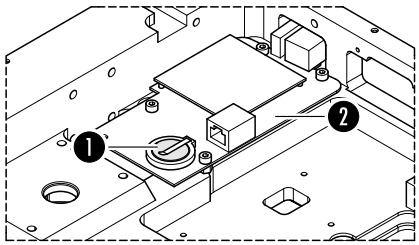
10. Adjust the system time via the WEB interface (service interface).

 **TEST**
Perform recheck according to IEC 60601-1; perform function test and final check.

13.3 Battery on the communications controller circuit board

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the cover from the center box (see chapter 12.3 on page 41).
5. Take the battery [1] out of the holder on the communication processor circuit board [2].



Assembly

1. **CAUTION**
   Danger of material damage due to incorrect polarity

   Incorrect battery installation can damage electrical operating table components.

   Ensure the polarity is correct. Insert the battery with the negative pole facing downward into the holder on the communication processor circuit board.
2. Attach the cover to the center box (see chapter 12.3 on page 41).
3. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
4. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
5. Put on the pad.
6. Adjust the system time via the WEB interface (service interface).

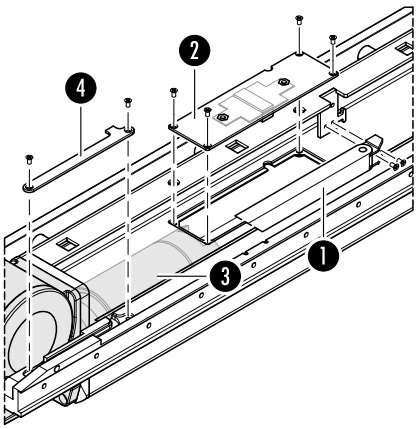
TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

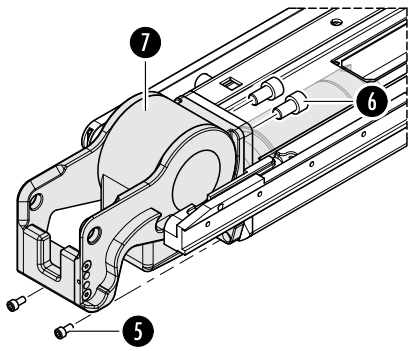
13.4 Drive unit for leg section

Important: assembly requires serial number. Note chapter 27 on page 276.

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the energy chain [1] (chain connection) from the inside of the bar (2 screws) to gain access to the screws on the bar cap [2].
5. Open the cap [2] on the bar (4 screws). Jiggle the energy chain back and forth to access the screws on the bar cap.
6. Be sure to note the cable routing.
   Through the opening in the bar, disconnect both plugs of cable W169 and the sensor cable plug from the leg section motor [3].
7. Disconnect the wires of the sensor cable from the plug, so that the cable can be pulled through the bar.
8. Remove the cover [4] from the inside the bar (2 screws).
9. If necessary, attach a pull wire to the loose end of the sensor cable and carefully pull the cable through the bar.
10. Remove the sensor cable from the pull wire.
11. Unscrew the drive unit [7] from the bar (2 screws each from above [6] and below [5]).
12. Pull off the leg section joint with drive unit [7] from the bar and safely place on a level work surface.



Assembly

1. Address the new motor (see the software description from the CAN test center).
2. Check the O-ring on the gear box and replace it if worn or damaged.
3. Place the O-ring precisely into the slot on the gear box. Make sure that the O-ring is properly seated and free from damage.
4. Carefully slide the drive unit in the bar to the end stop and mount (2 screws each from above and below).
5. Attach the end of the sensor cable to the pull wire and carefully pull the sensor cable into the bar.

6. Connect the wires of the sensor cable to the plug.
7. Restore the original cable routing.
   Through the opening in the bar, connect both plugs of cable W169 and the sensor cable plug to the leg section motor.
8. Mount the cover on the inside the bar (2 screws).
9. Restore the original cable routing.
   Pull cable W166/W167 through the recess on the bar cap and close the cap (4 screws). Make sure that no cables are pinched.
10. Attach the energy chain (chain connection) to the inside of the bar (2 screws).
11. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
12. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
13. Put on the pad.
14. Calibrate the leg section motor (CAN test center). See chapter 24.3 on page 266.
15. Update the software (see the software description from the CAN test center).

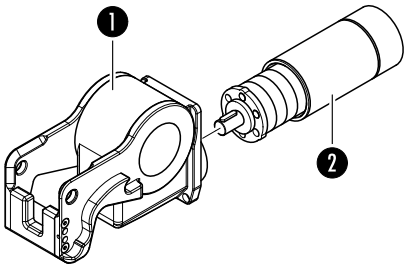
TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

13.5 Leg section motor

Important: assembly requires serial number. Note chapter 27 on page 276.

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the drive unit of the leg section (see chapter 13.4 on page 61).
5. Pay particular attention to the installation position of the motor and to the feather key.
   Release the ring nut on the motor [2] with a hook wrench and pull the motor [2] out of the gear box [1].

Assembly

1. Address the new motor (see the software description from the CAN test center).
2. Make sure to re-install the motor in its original position.
   Align the lugs on the motor flange with the recesses on the gear box (connection sockets on the motor are on top), rotate the motor shaft until the feather key lines up with the slot in the gear box, precisely insert the key into the slot of the motor shaft, and then slide the motor into the gear box up to the end stop.
3. Tighten the ring nut on the motor and fixate the connection with screw coating (#4150041) (at least three application points evenly distributed across the diameter.)
4. Attach the leg section drive unit to the seat section bar (see chapter 13.4 on page 61).
5. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
6. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
7. Put on the pad.
8. Calibrate the leg section motor (CAN test center). See chapter 24.3 on page 266.

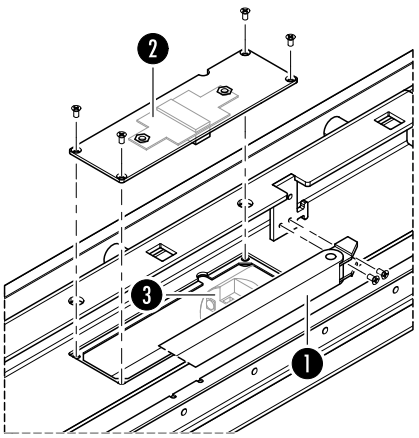
9. Update the software (see the software description from the CAN test center).

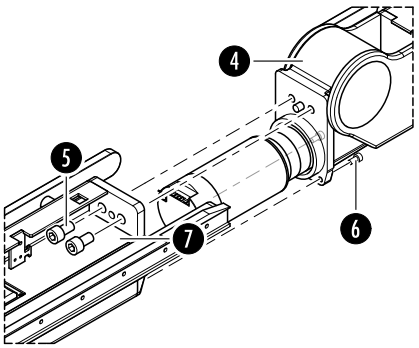
 TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

13.6 Back section drive unit (back section bar)

Important: assembly requires serial number. Note chapter 27 on page 276.

Disassembly





1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40).
4. Remove the pad plate of the back section (see chapter 12.2 on page 40).
5. Remove the energy chain [1] (chain connection) from the inside of the bar (2 screws) to gain access to the screws on the bar cap [2].
6. Open the cap [2] on the bar (4 screws). Jiggle the energy chain back and forth to access the screws on the bar cap.
7. Be sure to note the cable routing.
   Through the opening in the bar, disconnect both plugs of cable W169 and the sensor cable plug from the back section motor [3].
8. Unscrew the drive unit [4] from the seat section bar [7] (2 screws each from above [5] and below [6]).
9. Pull off back section bar from the seat section bar and safely place on a level work surface.

Assembly

1. Address the new motor (see the software description from the CAN test center).
2. Check the O-ring on the gear box and replace it if worn or damaged.
3. Place the O-ring precisely into the slot on the gear box. Make sure that the O-ring is properly seated and free from damage.
4. Carefully slide the drive unit in the bar to the end stop and mount (2 screws each from above and below).
5. Restore the original cable routing.
   Through the opening in the bar, connect both plugs of cable W169 and the sensor cable plug to the back section motor.
6. Restore the original cable routing.

Pull cable W166/W167 through the recess on the bar cap and close the cap (4 screws). Make sure that no cables are pinched.

7. Attach the energy chain (chain connection) to the inside of the bar (2 screws).
8. Calibrate the back section motor (CAN test center). See chapter 24.4 on page 266.
9. Align the bars (see chapter 24.2 on page 265).
10. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
11. Attach the pad plate to the back section bars (see chapter 12.2 on page 40).
12. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
13. Put on the pad.
14. Update the software (see the software description from the CAN test center).

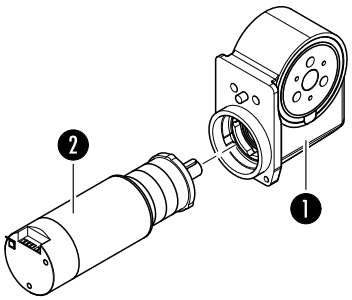
 **TEST**
Perform recheck according to IEC 60601-1; perform function test and final check.

13.7 Back section motor

Important: assembly requires serial number. Note chapter 27 on page 276.

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40).
4. Remove the pad plate of the back section (see chapter 12.2 on page 40).
5. Remove the drive unit of the back section (see chapter 13.6 on page 65).
6. Pay particular attention to the installation position of the motor and to the feather key.
   Release the ring nut on the motor [2] with a hook wrench and pull the motor [2] out of the gear box [1].



Assembly

1. Address the new motor (see the software description from the CAN test center).
2. Make sure to re-install the motor in its original position.
   Align the lugs on the motor flange with the recesses on the gear box (connection sockets on the motor are on top), rotate the motor shaft until the feather key lines up with the slot in the gear box, precisely insert the key into the slot of the motor shaft, and then slide the motor into the gear box up to the end stop.
3. Tighten the ring nut on the motor and fixate the connection with screw coating (#4150041) (at least three application points evenly distributed across the diameter.)
4. Attach the back section drive unit to the back section bar (see chapter 13.6 on page 65).
5. Calibrate the back section motor (CAN test center). See chapter 24.4 on page 266.
6. Align the bars (see chapter 24.2 on page 265).
7. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
8. Attach the pad plate to the back section bars (see chapter 12.2 on page 40).

9. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
10. Put on the pad.
11. Update the software (see the software description from the CAN test center).

 TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

13.8 Longitudinal travel motor

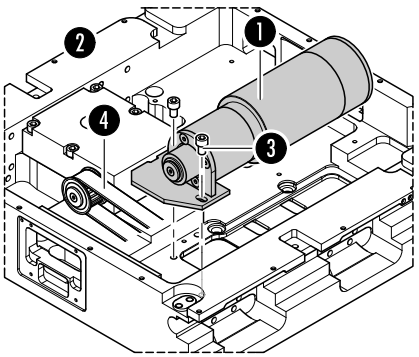
Important: assembly requires serial number. Note chapter 27 on page 276.

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).

> **CAUTION**
> **Risk of personal injury and property damage due to uncontrolled movement!**
>
> The table top must be in horizontal position! If the table top is tilted, the table top will independently slide to the mechanical end stop while removing the drive!

2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the cover from the center box (see chapter 12.3 on page 41).
5. Be sure to note the cable routing.
   Disconnect the plug and shielded connection of cable W168 from the longitudinal travel motor [1].
6. Disconnect the plug of the sensor cable from the longitudinal travel motor [1].
7. Unscrew the longitudinal travel motor [1] from the center box [2] of the table top (2 screws [3]) and lift it carefully out of the toothed belt [4].

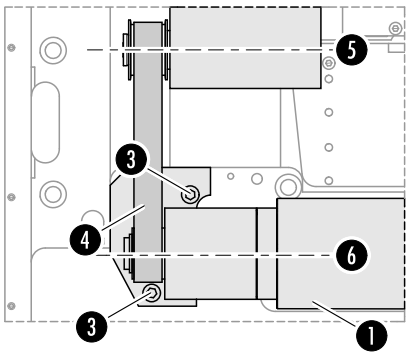


Assembly

1. Address the new motor (see the software description from the CAN test center).
2.

> **CAUTION**
> **Risk of material damage to toothed belt due to incorrect installation!**
>
> The teeth on the toothed belt pulley and on the toothed belt must securely engage (not tooth on tooth).

   Insert the longitudinal travel motor into the center box. Precisely place the toothed belt around the toothed belt pulley on the gear box and motor.



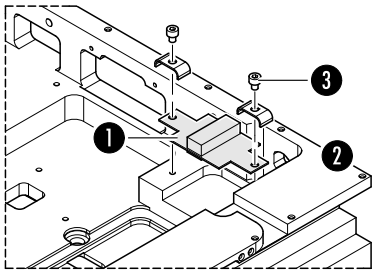
3. Attach the longitudinal travel motor to the center box (2 screws).
4. Tighten the toothed belt:
   a) Check the toothed belt tension with a belt tension meter. The value must be 140 Hz (±5 Hz). Slide the motor if the value is different (loosen the attachment screws [3] on the motor).
   b) Attach the longitudinal travel motor [1] in the center box of the table top (2 screws [3]). The axle [6] of the motor must be parallel to the shaft [5] of the gear box.
   c) Check the toothed belt tension and reset if there are differences. The value on the belt tension meter must be 140 Hz (±5 Hz).
5. Restore the original cable routing.
   Connect the plug and shielded connection of cable W168 to the longitudinal travel motor (see circuit diagram on page 295).
6. Plug the sensor cable plug into the longitudinal travel motor (see circuit diagram on page 295).
7. Calibrate the longitudinal travel motor (CAN test center) See chapter 24.5 on page 267.
8. Attach the cover to the center box (see chapter 12.3 on page 41).
9. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
10. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
11. Put on the pad.
12. Update the software (see the software description from the CAN test center).

TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

13.9 CAN distributor circuit board (center box)

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the cover from the center box (see chapter 12.3 on page 41).
5. Disconnect the wires of all plugs on the CAN distributor circuit board [1] (center box [2]).
6. Note the cable routing and attachment.
   Remove the CAN distributor circuit board [1] from the center box [2] (2 screws [3]).



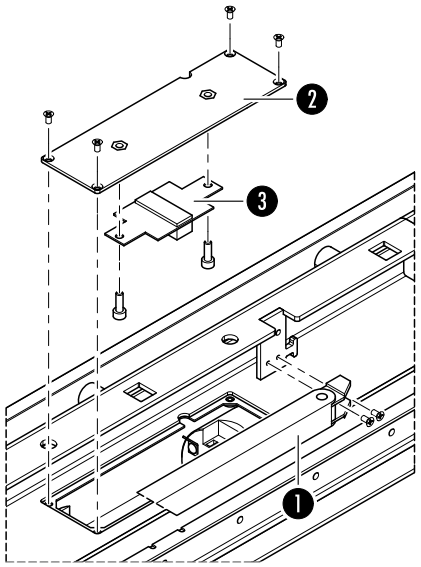
Assembly

1. Restore the original cable routing and cable attachment.
   Attach the CAN distributor circuit board in the center box (2 screws).
2. Attach all leads to their respective plugs on the CAN distributor circuit board (see circuit diagram on page 295).
3. Attach the cover to the center box (see chapter 12.3 on page 41).
4. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
5. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
6. Put on the pad.
7. Update the software (see the software description from the CAN test center).

TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

13.10 CAN distributor circuit board (bar)

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the energy chain [1] (chain connection) from the inside of the bar (2 screws) to gain access to the screws on the bar cap [2].
5. Be sure to note the cable routing.
   Open the cap [2] on the bar (4 screws) and gently tilt it so the underside of the circuit board [3] is accessible. Jiggle the energy chain back and forth to access the screws on the bar cap.
6. Disconnect the wires of all plugs on the CAN distributor circuit board [3] (bar cover [2]).
7. Remove the CAN distributor circuit board [3] from the bar cover [2] (2 screws, with 2 washers at the shielded connection).

Assembly

1. Attach all leads to their respective plugs on the CAN distributor circuit board (see circuit diagram on page 295).
2. Install the CAN distributor circuit board with the shielded connection of cable W166/W167 on the bar cover (2 screws, with 2 washers at the shielded connection).
3. Restore the original cable routing.
   Pull cable W166/W167 through the recess on the bar cap and close the cap (4 screws). Make sure that no cables are pinched.
4. Attach the energy chain (chain connection) to the inside of the bar (2 screws).
5. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
6. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
7. Put on the pad.

8. Update the software (see the software description from the CAN test center).

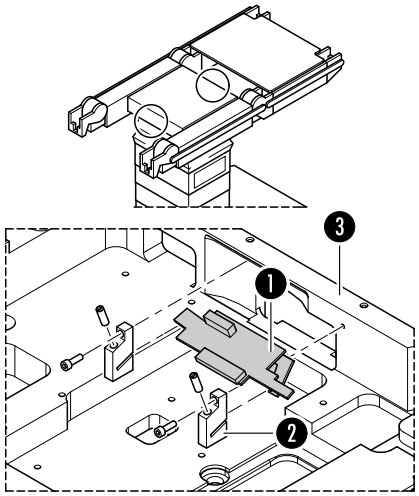
 TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

13.11 Endolight interface circuit board

The Endolight interface circuit board is not available with all operating table versions.

Important: assembly requires serial number. Note chapter 27 on page 276.

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the cover from the center box (see chapter 12.3 on page 41).
5. Be sure to note the cable routing.
   Remove both plugs from the Endolight interface circuit board [1].
6. Remove the holder [2] with the Endolight interface circuit board [1] from the center box [3] (2 screws).
7. Remove the holder [2] from the Endolight interface circuit board [1] (2 set screws).

Assembly

1. Attach the Endolight interface circuit board to both holders (2 set screws).
2. Insert and install the Endolight interface circuit board in the center box (2 screws).
3. Restore the original cable routing.
   Connect the plug of cable W193 and W190/191 to the Endolight interface circuit board (see circuit diagram on page 295).
4. Attach the cover to the center box (see chapter 12.3 on page 41).
5. Mount the pad plate on the seat section bars (6 screws).
6. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
7. Put on the pad.
8. Update the software (see the software description from the CAN test center).

TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

14 Mechanical parts of the column

CAUTION
Risk of injury!

Always store tools and removed components securely and make sure no one can trip or fall over them.

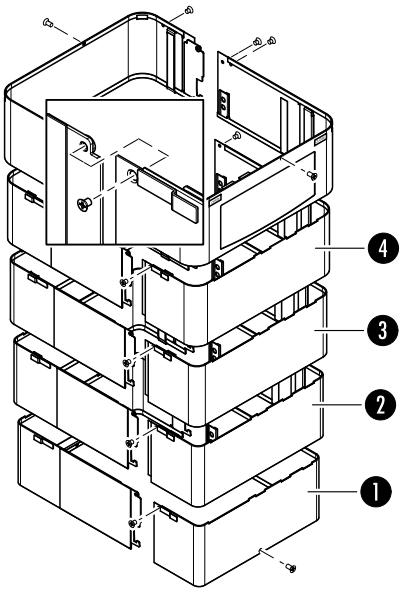
CAUTION
Risk of material damage!

Do not let screws, nuts or other parts fall into the operating table! Immediately remove any parts that fell in. Parts that have not been removed can damage other components or cables when the OR table is adjusted. The operating table may not be released to the customer if parts fell in and were not removed.

For all screws ≥ M4 without split lock washers, use a medium-strength screw locking agent.

14.1 Column cover

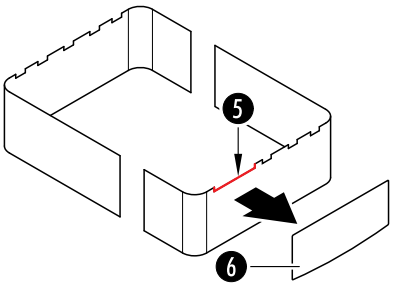
Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Grasp the column cover, remove the holding screw from the Trendelenburg assembly and guide the cover carefully downward.
4. Open the column cover at the top and slide it down (see chapter 9 on page 31).
5. Remove metal panels [1] to [4] from the outside, segment by segment (4 sets of 2 screws).
6. Remove the metal panel with the column keypad (see chapter 14.2 on page 77).

Assembly

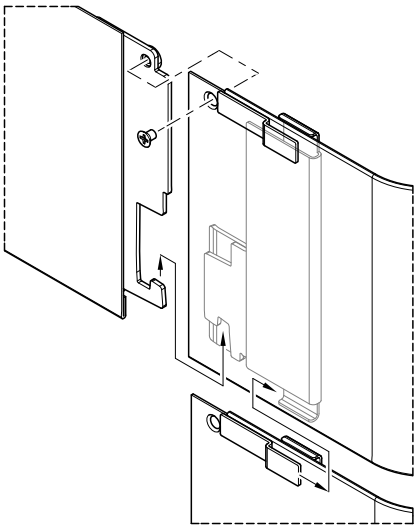
1. Attach the metal panel with the column keypad to the frame (see chapter 14.2 on page 77).



2.

CAUTION
Risk of material damage

The column keypad broadband cable will be damaged if the metal panel segments are installed incorrectly. During installation, make sure that all segments are installed with the large cutout [5] on the side with the column keypad [6] (left side from the operating table).



Position the metal panels on the pot segment by segment and install them from inside to outside (4 sets of 2 screws).

3. Slide the column cover up and close it (see chapter 9 on page 31).
4. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
5. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
6. Put on the pad.

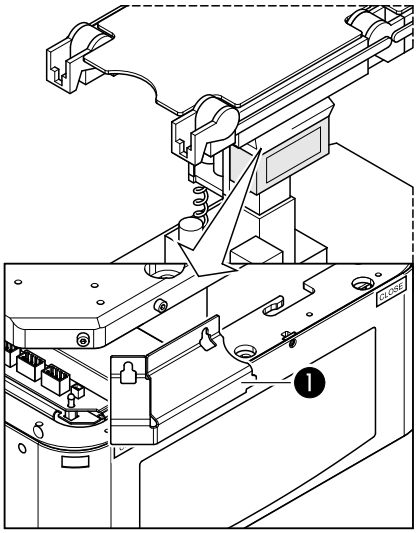
TEST

Perform a function test.

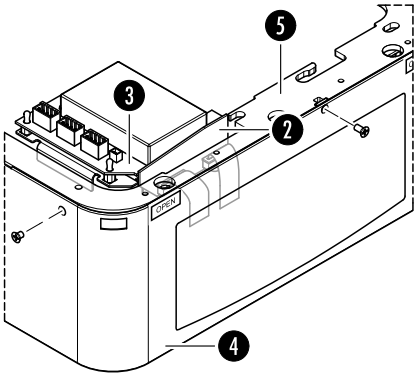
14.2 Metal panel with the column keypad

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Grasp the column cover, remove the holding screw from the Trendelenburg assembly and guide the cover carefully downward.
4. Open the column cover at the top and slide it down (see chapter 9 on page 31).
5. Loosen the two screws on the deflector plate [1] of the column controller. Push the deflector plate [1] up and remove it.



6. Carefully remove the column keypad circuit board [2] from the column controller [3].
7. Unscrew the metal panel [4] with the column keypad from the frame [5] (3 screws). Make sure that the column keypad [2] is not damaged when the metal panel is removed.



Assembly

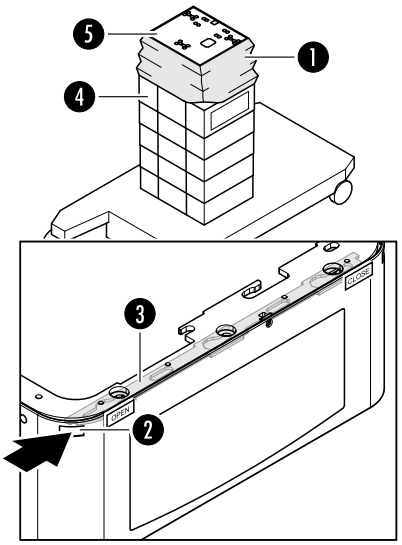
1. Install the metal panel with the column keypad on the frame (3 screws).
2. Plug the column keypad circuit board into the column controller (see circuit diagram on page 295).
3. Insert the deflector plate of the column controller into the suspension plate and mount it (2 screws).
4. Slide the column cover up and close it (see chapter 9 on page 31).

5. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
6. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
7. Put on the pad.

TEST
Perform a function test.

14.3 Bellows

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the table top (see chapter 12.1 on page 38).
4. Detach the bellows [1] from the cover [4]. To do this, fold the corner of the bellows up slightly to reveal the opening in the column cover. At the left and the right in the *OPEN* opening [2] push the slider plate [3] toward *CLOSE*.
5. Release the bellows from the mounting plate [5] (adhesive).
6. Note the mounting position of the bellows!
   Pull the bellows upward from the column.

Assembly

1. Remove any adhesive residue from the edge of the mounting plate and degrease.
2. Note the original mounting position of the bellows!
   Pull the bellows on the column.
3. Slide the bellows down into the frame.
4. At the left and the right in the *CLOSE* opening push the slider plate toward *OPEN*. Make sure the bellows frame connection is closed.
5. Attach the upper end of the bellows to the mounting plate with adhesive (one adhesive point per side) so that the bellows will not slip when applying the table top.
6. Attach the table top (see chapter 12.1 on page 38).
7. Attach the cover to the center box (see chapter 12.3 on page 41).

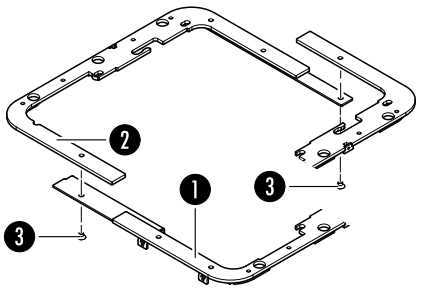
8. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
9. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
10. Put on the pad.

TEST
Perform a function test.

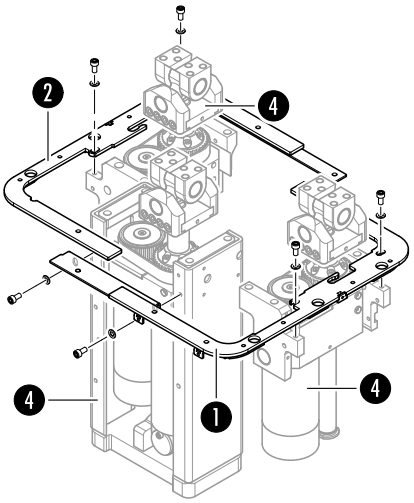
14.4 Frame (connection ring)

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Grasp the column cover, remove the holding screw from the Trendelenburg assembly and guide the cover carefully downward.
4. Open the column cover at the top and slide it down (see chapter 9 on page 31).
5. Remove the metal panel with the column keypad (see chapter 14.2 on page 77).
6. Separate the frame pieces [1]/[2] from one another (2 screws [3] from below).



7. Note the original installation position of the frame parts.
   Remove the complete frame (connection ring with connection plate bracket and slider plate) from the drive assembly [4] (2 screws each with washers).



Assembly

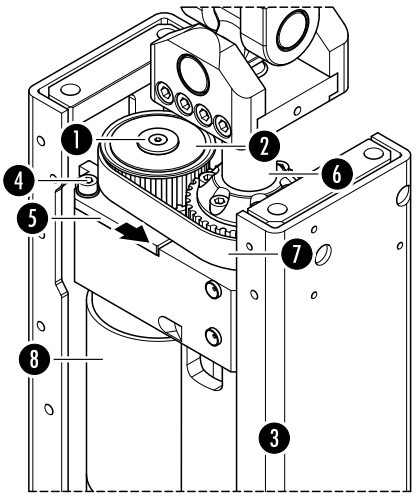
1. Make sure to re-install the frame in its original position.
   Make sure cables W108 and W109 are routed through the cutout of the frame parts. Position the frame parts on the drive assemblies and connect to one another (2 screws from below).
2. Install the frame on the drive assembly (2 screws each with washers).
3. Attach the metal panel with the column keypad (see chapter 14.2 on page *77*).
4. Slide the column cover up and close it (see chapter 9 on page 31).
5. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
6. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
7. Put on the pad.

 **TEST**
Perform a function test.

14.5 Toothed belt from the Trendelenburg drive

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the table top (see chapter 12.1 on page 38).
4. Remove the bellows (see chapter 14.3 on page 78).
5. Grasp the column cover, remove the holding screw from the Trendelenburg assembly and guide the cover carefully downward.
6. Open the column cover at the top and slide it down (see chapter 9 on page 31).
7. Remove the metal panel with the column keypad (see chapter 14.2 on page 77).
8. Remove the frame (connection ring) (see chapter 14.4 on page 79).
9. Remove the Trendelenburg assembly (see chapter 15.7 on page 118).
10. Remove the disk [1] from the toothed belt pulley [2] of the Trendelenburg assembly [3] (1 screw).
11. Loosen the 4 screws [4] on the motor mounting bracket [5] and slide the bracket [5] towards the spindle [6] a bit.
12. Pay attention to the feather key. Remove the loosened tooth belt pulley [2] with toothed belt [7] from the motor [8] and remove the toothed belt from the assembly.

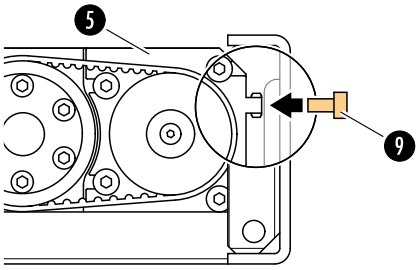


Assembly

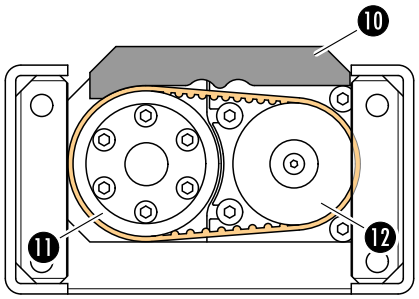
1. **CAUTION**
   Risk of material damage to toothed belt!

   The teeth on the toothed belt pulley and on the toothed belt must securely engage (not tooth on tooth). If necessary, move the motor back and forth a little.

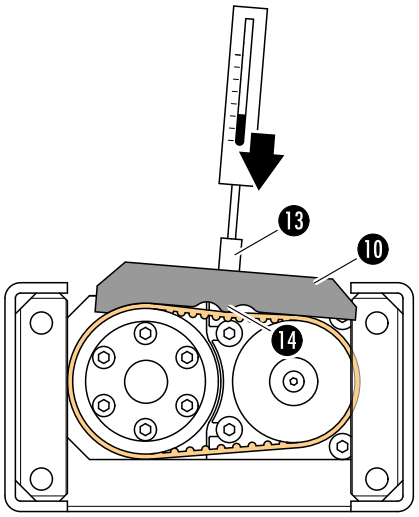
   Pay attention to the feather key. Place the toothed belt around the toothed belt pulley on the Trendelenburg assembly. Insert the loose toothed belt pulley precisely into the toothed belt and set in on the axis of the motor. Attach the toothed belt pulley (1 screw with washer).



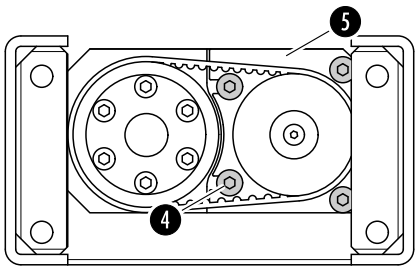
2. Tighten the toothed belt:
   a) Lay the drive flat on a level surface.
   b) Screw in an M5 clamping screw [9] on the side of the motor mounting bracket [5].



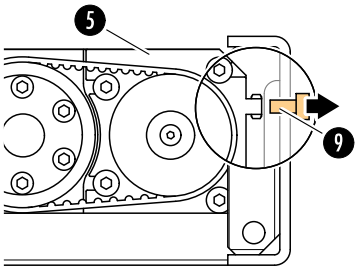
   c) Lay the bracket (#1814183) [10] on the drive with the curve lying on the large toothed belt pulley [11]. The bracket should not lie on the small toothed belt pulley [12] yet.



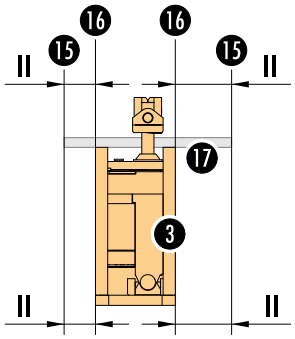
   d) Press the spring balance [13] into the bracket [10] until the bracket rests on both pulleys and the brace [14] in the middle is slightly pressed. Read the force required to do this from the spring balance. The value must be between 10 N and 15 N. If necessary, adjust the toothed belt tension with the M5 clamping screw.



   e) Take the bracket from the drive.
   f) Tighten the 4 screws [4] on the motor mounting bracket [5].



   g) Remove the clamping screw [9] from the motor mounting bracket [5].



3. **CAUTION**
Risk of material damage!

Material wear due to improper assembly! The outer edges [15] of the suspension plate [17] must be parallel to the outer edges [16] of the Trendelenburg assembly [3].

Install the Trendelenburg assembly (see chapter 15.7 on page 118).

4. Attach the frame (connection ring) (see chapter 14.4 on page 79).
5. Attach the bellows (see chapter 14.3 on page 78).
6. Attach the table top (see chapter 12.1 on page 38).
7. Attach the cover to the center box (see chapter 12.3 on page 41).
8. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
9. Attach the metal panel with the column keypad (see chapter 14.2 on page 77).
10. Slide the column cover up and close it (see chapter 9 on page 31).
11. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
12. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
13. Put on the pad.
14. Update the software (see the software description from the CAN test center).

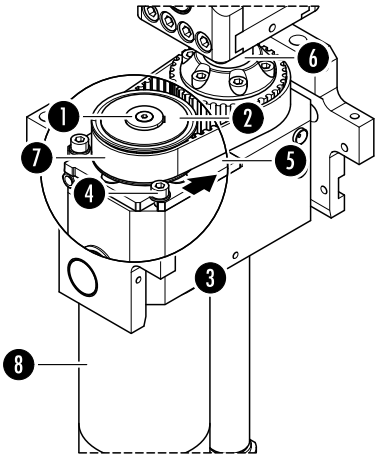
TEST

Perform function test and final check.

14.6 Toothed belt from the tilt right drive

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the table top (see chapter 12.1 on page 38).
4. Remove the bellows (see chapter 14.3 on page 78).
5. Grasp the column cover, remove the holding screw from the Trendelenburg assembly and guide the cover carefully downward.
6. Open the column cover at the top and slide it down (see chapter 9 on page 31).
7. Remove the metal panel with the column keypad (see chapter 14.2 on page 77).
8. Remove the tilt right assembly (see chapter 15.8 on page 122).



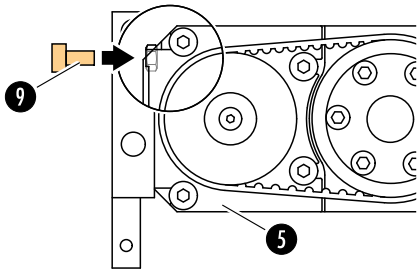
9. Remove the disk [1] from the toothed belt pulley [2] of the tilt right assembly [3] (1 screw).
10. Loosen the 4 screws [4] on the motor mounting bracket [5] and slide the bracket [5] towards the spindle [6] a bit.
11. Pay attention to the feather key. Remove the loosened tooth belt pulley [2] with toothed belt [7] from the motor [8] and remove the toothed belt from the assembly.

Assembly

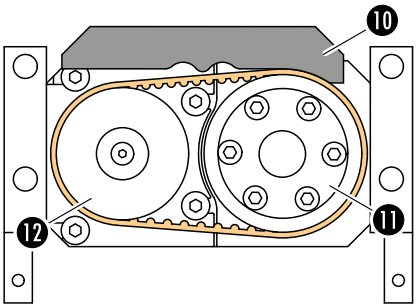
1. **CAUTION**
   Risk of material damage to toothed belt!

   The teeth on the toothed belt pulley and on the toothed belt must securely engage (not tooth on tooth). If necessary, move the motor back and forth a little.

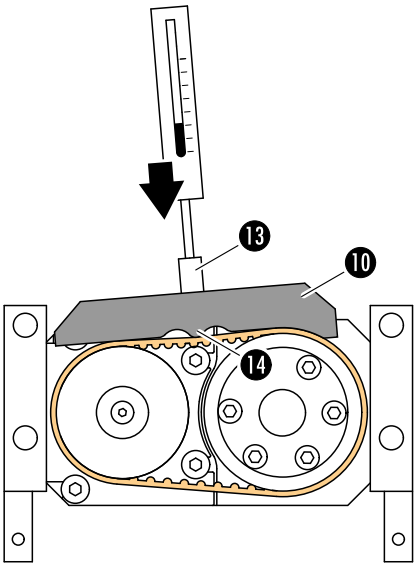
   Pay attention to the feather key. Place the toothed belt around the toothed belt pulley on the tilt right assembly. Insert the loose toothed belt pulley precisely into the toothed belt and set in on the axis of the motor. Attach the toothed belt pulley (1 screw with washer).



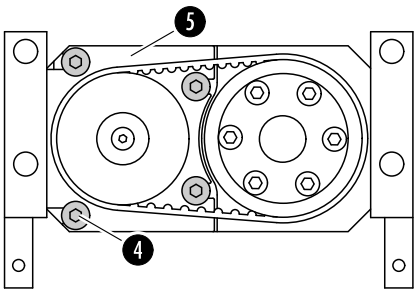
2. Tighten the toothed belt:
   a) Lay the drive flat on a level surface.
   b) Screw in an M5 clamping screw [9] on the side of the motor mounting bracket [5].



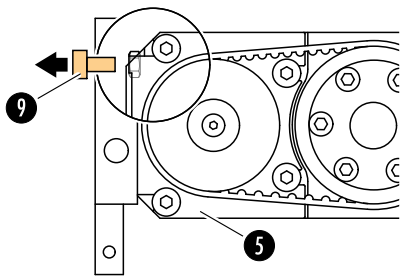
   c) Lay the bracket (#1814183) [10] on the drive with the curve lying on the large toothed belt pulley [11]. The bracket should not lie on the small toothed belt pulley [12] yet.



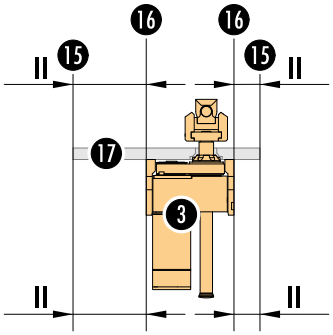
   d) Press the spring balance [13] into the bracket [10] until the bracket rests on both pulleys and the brace [14] in the middle is slightly pressed. Read the force required to do this from the spring balance. The value must be between 10 N and 15 N. If necessary, adjust the toothed belt tension with the M5 [9] clamping screw.



   e) Take the bracket from the drive.
   f) Tighten the 4 screws [4] on the motor mounting bracket [5].



   g) Remove the clamping screw [9] from the motor mounting bracket [5].



3. **CAUTION**
Risk of material damage!

Material wear due to improper assembly! The outer edges [15] of the suspension plate [17] must be parallel to the outer edges [16] of the tilt right assembly [3].

Install the tilt right assembly (see chapter 15.8 on page 122).

4. Attach the bellows (see chapter 14.3 on page 78).
5. Attach the table top (see chapter 12.1 on page 38).
6. Attach the cover to the center box (see chapter 12.3 on page 41).
7. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
8. Attach the metal panel with the column keypad (see chapter 14.2 on page 77).
9. Slide the column cover up and close it (see chapter 9 on page 31).
10. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
11. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
12. Put on the pad.
13. Update the software (see the software description from the CAN test center).

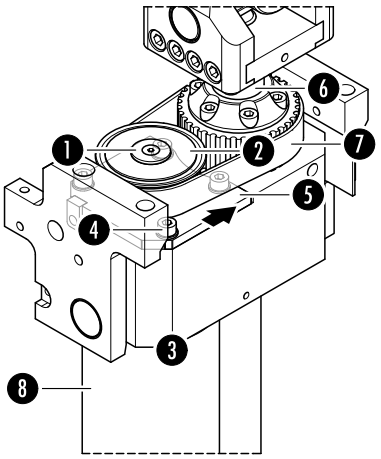
TEST

Perform function test and final check.

14.7 Toothed belt from the tilt left drive

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the table top (see chapter 12.1 on page 38).
4. Remove the bellows (see chapter 14.3 on page 78).
5. Grasp the column cover, remove the holding screw from the Trendelenburg assembly and guide the cover carefully downward.
6. Open the column cover at the top and slide it down (see chapter 9 on page 31).
7. Remove the tilt left assembly (see chapter 15.9 on page 125).
8. Remove the disk [1] from the toothed belt pulley [2] of the tilt left assembly [3] (1 screw).
9. Loosen the 4 screws [4] on the motor mounting bracket [5] and slide the bracket [5] towards the spindle [6] a bit.
10. Pay attention to the feather key. Remove the loosened tooth belt pulley [2] with toothed belt [7] from the motor [8] and remove the toothed belt from the assembly.

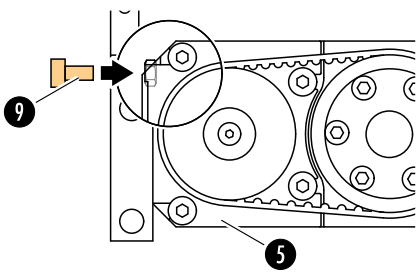


Assembly

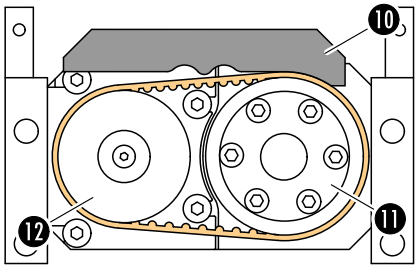
1. **CAUTION**
   Risk of material damage to toothed belt!

   The teeth on the toothed belt pulley and on the toothed belt must securely engage (not tooth on tooth). If necessary, move the motor back and forth a little.

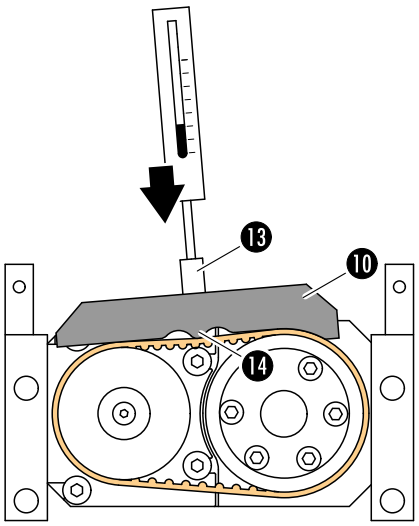
   Pay attention to the feather key. Place the toothed belt around the toothed belt pulley on the tilt left assembly. Insert the loose toothed belt pulley precisely into the toothed belt and set in on the axis of the motor. Attach the toothed belt pulley (1 screw with washer).



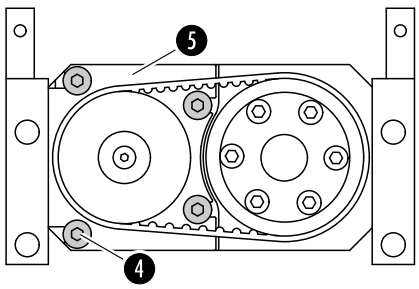
2. Tighten the toothed belt:
   a) Lay the drive flat on a level surface.
   b) Screw in an M5 clamping screw [9] on the side of the motor mounting bracket [5].



c) Lay the bracket (#1814183) [10] on the drive with the curve lying on the large toothed belt pulley [11]. The bracket should not lie on the small toothed belt pulley [12] yet.

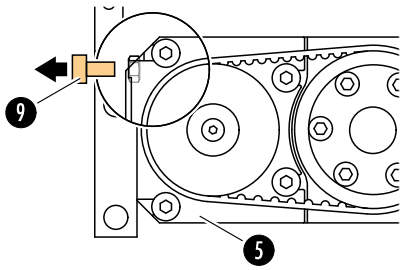


d) Press the spring balance [13] into the bracket [10] until the bracket rests on both pulleys and the brace [14] in the middle is slightly pressed. Read the force required to do this from the spring balance. The value must be between 10 N and 15 N. If necessary, adjust the toothed belt tension with the M5 [9] clamping screw.

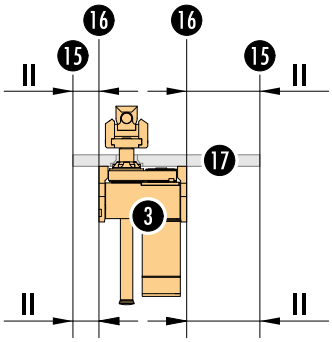


e) Take the bracket from the drive.

f) Tighten the 4 screws [4] on the motor mounting bracket [5].



g) Remove the clamping screw [9] from the motor mounting bracket [5].



3.

CAUTION
Risk of material damage!

Material wear due to improper assembly! The outer edges [15] of the suspension plate [17] must be parallel to the outer edges [16] of the tilt left assembly [3].

Install the tilt left assembly (see chapter 15.9 on page 125).

4. Attach the bellows (see chapter 14.3 on page 78).
5. Attach the table top (see chapter 12.1 on page 38).

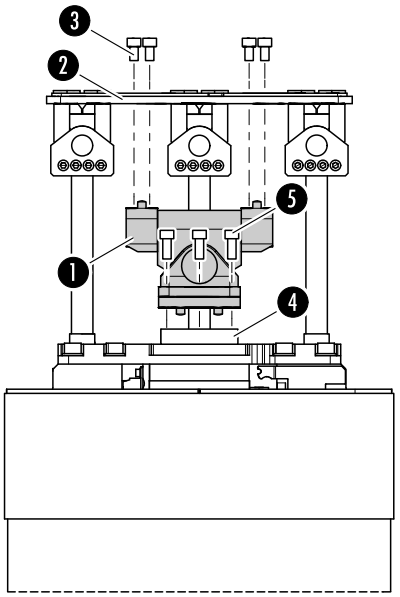
6. Attach the cover to the center box (see chapter 12.3 on page 41).
7. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
8. Slide the column cover up and close it (see chapter 9 on page 31).
9. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
10. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
11. Put on the pad.
12. Update the software (see the software description from the CAN test center).

TEST

Perform function test and final check.

14.8 Main cardan

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the table top (see chapter 12.1 on page 38).
4. Remove the bellows (see chapter 14.3 on page 78).
5. **CAUTION**
   Risk of injury from sinking guide column!

   When loosening the screw connection between the main cardan and the mounting plate, the topmost guide block with the main cardan can fall quickly due to its own weight and cause severe injuries. During disassembly, do not grab underneath the main cardan.
6. Unscrew the main cardan [1] from the mounting plate [2] (8 screws [3]). It is possible that the main cardan is seated securely on the pins and may have to be tapped off the mounting plate.
   The upper guide block [4] slides downward as soon as the main cardan [1] is removed from the mounting plate [2]. If that is not the case, manually push the upper guide block downward.
7. Remove the main cardan [1] from the upper guide block [4] (5 screws [5]).

Assembly

1. Place the main cardan on the upper guide block and install it (5 screws).
2. Pull the main cardan with the guide block upward and attach to the mounting plate (8 screws).
3. Attach the bellows (see chapter 14.3 on page 78).
4. Attach the table top (see chapter 12.1 on page 38).
5. Attach the cover to the center box (see chapter 12.3 on page 41).
6. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
7. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
8. Put on the pad.

TEST

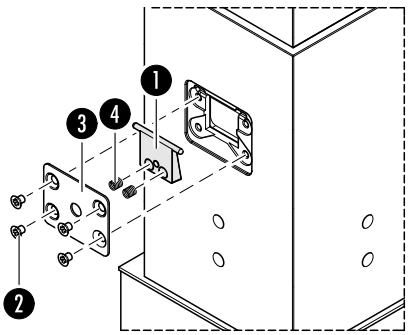
Perform function test and final check.

14.9 Ratchet brace

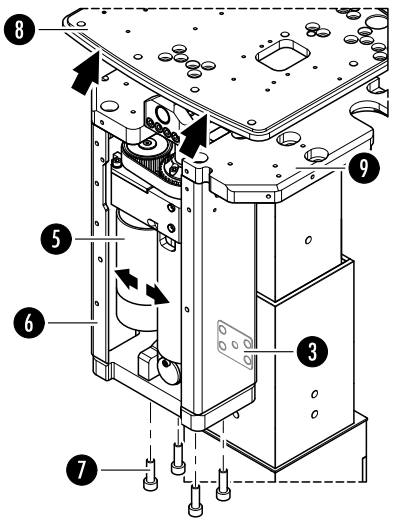
There are 2 ratchet braces each located at the head and foot ends of the guide column.

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Grasp the column cover, remove the holding screw from the Trendelenburg assembly and guide the cover carefully downward.
4. Open the column cover at the top and slide it down (see chapter 9 on page 31).
5. Remove the metal panel with the column keypad (see chapter 14.2 on page 77).



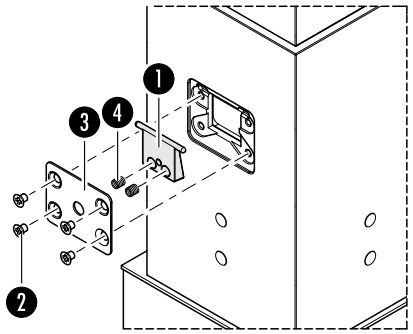
6. Head-end ratchet brace (rear):
   Note the installation position of the ratchet brace [1].
   Caution: when the screws [2] are loosened, the pressure springs [4] behind the plate [3] push it out. Remove the plate [3] with the two pressure springs [4] and the ratchet brace [1] (4 screws [2]).



7. Foot-end ratchet brace (front behind the Trendelenburg assembly):
   Caution: the column must be in the uppermost lifting position.
   a) Remove the 4 screws [7] from below on the suspension [6].
   b)

> **CAUTION**
> **Risk of injury from sinking table top!**
>
> Carefully tilt the table top upward and place a support between the suspension plate [9] and mounting plate [8] so that the table top does not tilt back.

   c) Carefully slide the Trendelenburg drive [5] in the suspension [6] and press it upward so that the screws [2] on the metal plate [3] are accessible. If the screws are not accessible, use the CAN test center (PC) to move the main lift of the operating table so that the screws on the ratchet brace behind the Trendelenburg drive are accessible.



CAUTION
Risk of injury due to loss of ratchet brace function!

Move the operating table main lift only minimally because the ratchet brace safety function is not working. Do not provide additional lift if the table top is tilted.

d) Note the installation position of the ratchet brace [1].
Caution: when the screws [2] are loosened, the pressure springs [4] behind the plate [3] push it out. Remove the plate [3] with the two pressure springs [4] and the ratchet brace [1] (4 screws [2]).

Assembly

1. Insert 2 pressure springs in the ratchet brace.
2. Note the original mounting position of the ratchet brace!
   Insert the ratchet brace with pressure springs and metal plate in the guide column and mount (4 screws).
3. Remove the support between the suspension plate and the mounting plate.
4. Carefully tilt the table top back to the end stop.
5. Install the Trendelenburg drive (4 screws).
6. **TEST**

   Perform a function test for all ratchet braces! The ratchets have to be easy to move.

   Caution: the column must be in the uppermost lifting position. Using an Allen key through the opening in the metal plate, check whether the ratchet moves easily. Repeat the repair if the ratchet does not move easily.
7. Attach the metal panel with the column keypad (see chapter 14.2 on page 77).
8. Slide the column cover up and close it (see chapter 9 on page 31).
9. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
10. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
11. Put on the pad.

TEST

Perform a function test.

14.10 Telescopic spindle

The telescopic spindle is removed according to variant 1 as long as the spindle still moves and the lift function is possible. In contrast, use variant 2 for removal if the spindle is stuck and the lift function is not possible.

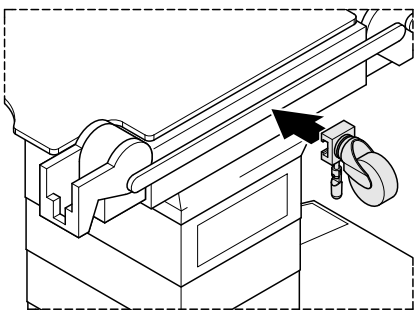
14.10.1 Telescopic spindle - Variant 1

Important: assembly requires serial number. Note chapter 27 on page 276.

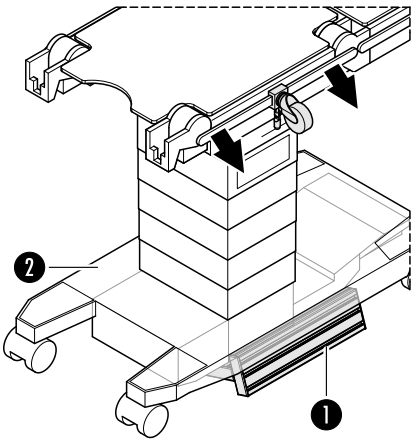
Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Column is in the lowest position, and is then moved 15 cm upward. In this position, the spindle attachment screws in the column shaft are easily accessible.
3. **CAUTION**
   Risk of material damage!
   The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).

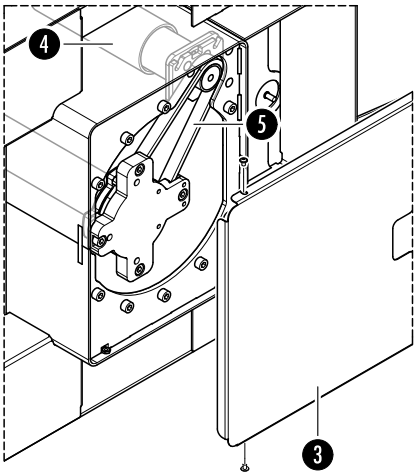


4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33). Do not attempt to adjust the lifting position of the column.
5. Secure the star wheel (#1800121) on the left side rail [4] of the seat section.



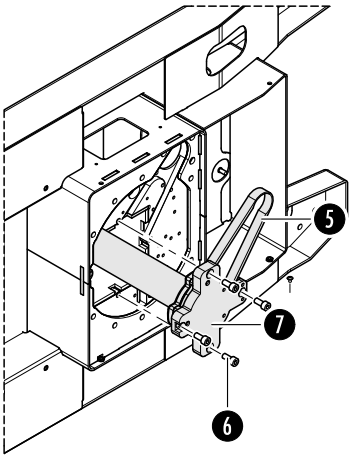
6. Slide the multifunction tool [1] mounted as a T under the table base [2].
7. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points down) and set it down securely on a flat, soft surface.

[4] Side with the column keypad



8. Remove the subfloor cover [3] on the table base (4 screws).
9. Unscrew the lift motor assembly [4] from the column base (4 screws with washers).

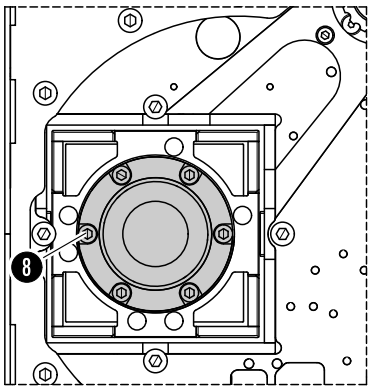
   Note that simply relaxing the toothed belt tension is not enough; the toothed belt cannot be removed from the pinion of the lift motor if the lift motor is built in.
10. Pull the lift motor assembly [4] out of the toothed belt [5] and place it in the column pot. If necessary, move the assembly back and forth until the toothed belt [5] can be removed from the pinion.



11. Remove the 4 screws [6] in the operating table base from the bearing shell [7].
12. **CAUTION**
    Risk of mechanical deformation of the spindle!

    Unscrew the spindle out of the guide column only as far as necessary.

    Using your hand, carefully pull the toothed belt [5] counterclockwise. Pulling on the toothed belt [5] causes the spindle and the shell bearing to rotate out of the guide column, making the column shaft accessible.



13. Remove the 6 screws [8] from the spindle tube (spindle holder) in the column shaft.
14. Carefully pull the spindle out of the column shaft.

Assembly

1. When installing a new telescopic spindle, replace the spindle model plate on the guide column (between the lift motor and the power supply unit). Remove the old model plate from the guide column. Remove the adhesive label from the packaging of the new telescopic spindle and adhere it to the guide column.

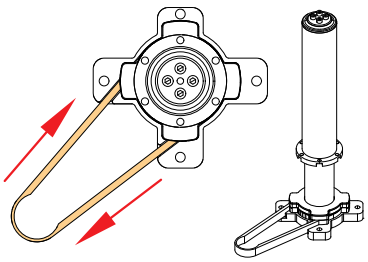
2. **CAUTION**
Risk of material damage!

The spindle should never travel under motorized power to either of the mechanical end stops. During adjustment, the spindle is set such that the lifting function stops before reaching the mechanical end stops.

Adjusting the spindle (see chapter 24.1 on page 262).

3. **CAUTION**
Risk of material damage if spindle adjustment is lost!

Hold the spindle tube securely to maintain the adjustment. When the spindle tube turns, the inner and outer spindles do not rotate in or out equidistantly, making readjustment necessary.



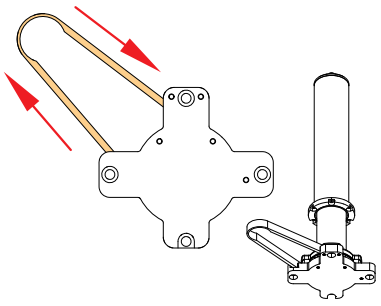
Place the telescopic spindle on a firm surface and manually pull the toothed belt pulley clockwise until you see the first color marking on the spindle.

4. Note the correct installation position. Do not turn the telescopic spindle into itself any further. Using both hands, securely grasp the spindle at the spindle tube and bearing shell.
Hold the spindle in the installation position (make sure the toothed belt is in right direction) and slide it to the end stop in the column shaft.

5. **CAUTION**
Risk of material damage if spindle adjustment is lost!

When you release the bearing shell, pay attention to the direction in which it turns.

Mount the telescopic in the column shaft (6 screws).



6. Rotate the bearing shell back into the installation position and manually pull the toothed belt clockwise until the bearing shell rests on the floor plate.
7. Attach the bearing shell to the floor plate (4 screws).
8. Install the lift motor (see chapter 15.6 on page 115). The teeth of the pinion and of the toothed belt must interlock exactly! Take note of the toothed belt tension!
9. Attach the subfloor cover (4 screws).
10. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.

11. Remove the multifunction tool.
12. Remove the toothed wheel.
13. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
14. Lock operating table (brake)
15. Put on the pad.
16. Calibrate the lift motor (CAN test center). See chapter 24.7 on page 268.
17. Update the software (see the software description from the CAN test center).

TEST

Perform function test and final check.

14.10.2 Telescopic spindle - Variant 2

Important: assembly requires serial number. Note chapter 27 on page 276.

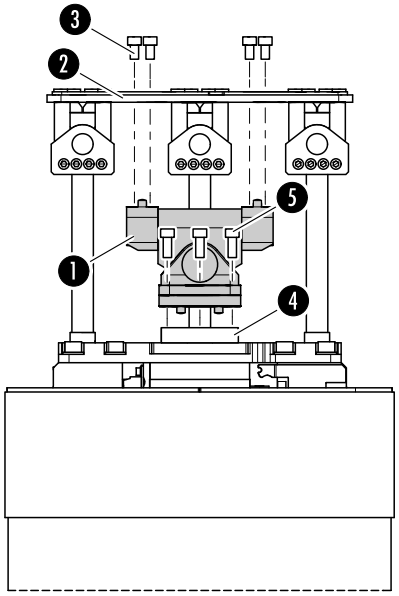
Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
   Note: The lifting position cannot be adjusted if the spindle is defective.
2. Move the additional lift upward so that the main cardan can be removed (CAN test center).
3. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).

CAUTION
Risk of injury due to electric shock!

The battery plugs cannot be disconnected when the operating table is set in the lowest lifting position. In this case, work must be done under voltage. Make sure that no functions (e.g., lift, tilt) are carried out on the operating table.

4. Remove the table top (see chapter 12.1 on page 38).
5. Loosen the bellows from the mounting plate (adhesive) and guide downward.



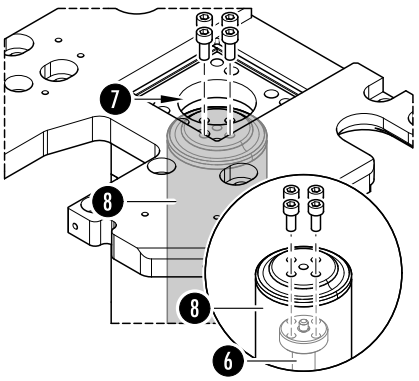
6. **CAUTION**
Risk of injury from sinking guide column!

When loosening the screw connection between the main cardan and the mounting plate, the topmost guide block with the main cardan can fall quickly due to its own weight and cause severe injuries. During disassembly, do not grab underneath the main cardan.

Unscrew the main cardan [1] from the mounting plate [2] (8 screws [3]). It is possible that the main cardan is seated securely on the pins and may have to be tapped off the mounting plate.

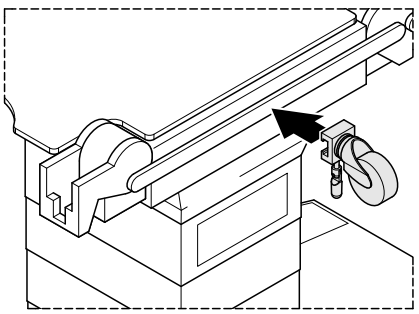
The upper guide block [4] slides downward as soon as the main cardan [1] is removed from the mounting plate [2]. If that is not the case, manually push the upper guide block downward.

7. Remove the main cardan [1] from the upper guide block [4] (5 screws [5]).



8. Remove the screws at the upper end of the telescopic spindle [6] (in the opening [7] of the upper guide block). This releases the connection between the spindle tube [8] and the spindle [6].

9. Install the main cardan and put the table top back on so that the table can be placed on its side.
   a) Place the main cardan on the upper guide block and install it (5 screws).
   b) Pull the main cardan with the guide block upward and attach to the mounting plate (8 screws).
   c) Attach the table top (see chapter 12.1 on page 38).



10. Secure the star wheel (#1800121) on the left side rail [5)] of the seat section.

11. Establish the internal power supply and turn on the operating table (see chapter 10 on page 33).

12. **CAUTION**
Risk of material damage!

The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

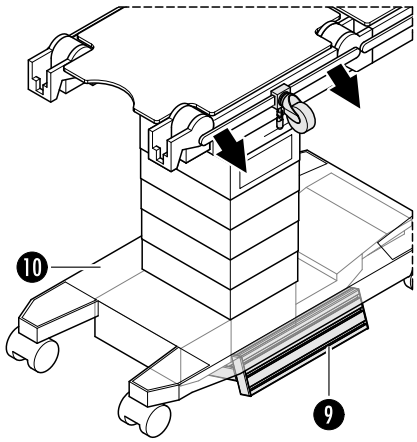
Release the brake on the operating table (unlock the operating table).

13. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).

[5)] Side with the column keypad

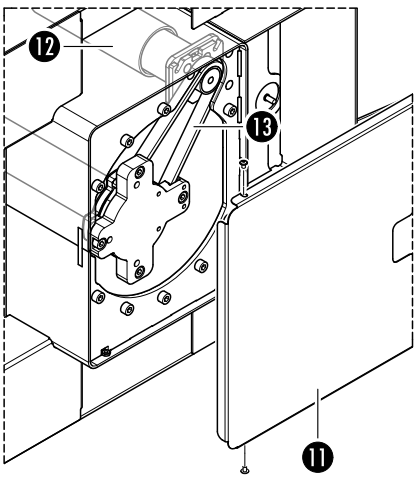
CAUTION
Risk of injury due to electric shock!

The battery plugs cannot be disconnected when the operating table is set in the lowest lifting position. In this case, work must be done under voltage. Make sure that no functions (e.g., lift, tilt) are carried out on the operating table.



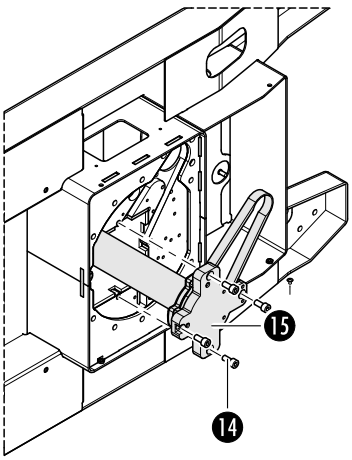
14. Slide the multifunction tool [9] mounted as a T under the table base [10].
15. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points down) and set it on the star wheel.

    After placing the table on its side, do not activate the hydraulics system to prevent air from seeping into the hydraulic hoses.

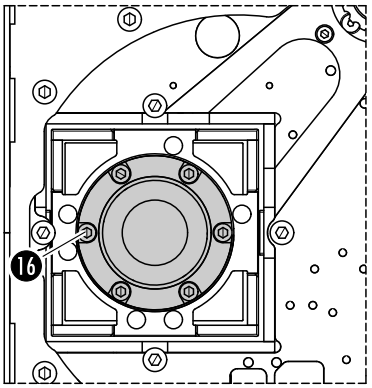


16. Remove the subfloor cover [11] on the table base (4 screws).
17. Unscrew the lift motor assembly [12] from the column base (4 screws with washers).

    Note that simply relaxing the toothed belt tension is not enough; the toothed belt cannot be removed from the pinion of the lift motor if the lift motor is built in.
18. Pull the lift motor assembly [12] out of the toothed belt [13] and place it in the column pot. If necessary, move the assembly back and forth until the toothed belt [13] can be removed from the pinion.



19. Remove the 4 screws [14] in the operating table base from the bearing shell [15].
20. Carefully pull the spindle out of the column shaft.



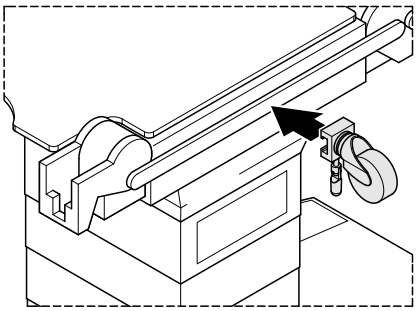
21. Remove the spindle holder from the column shaft (6 screws [16]). If necessary, manually move the column together until the screws can be accessed with the tool.
22. Remove the spindle tube from the column shaft.

Assembly

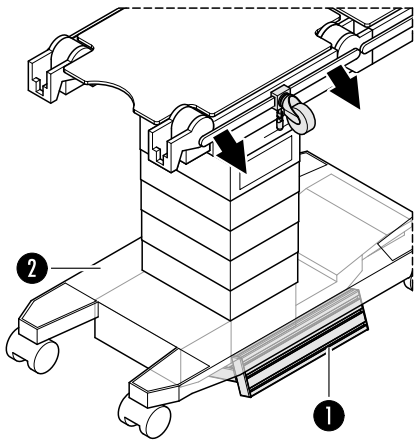
Assembly is the same as for version 1 (see chapter 14.10.1 on page 93).

14.11 Toothed belt from the main drive

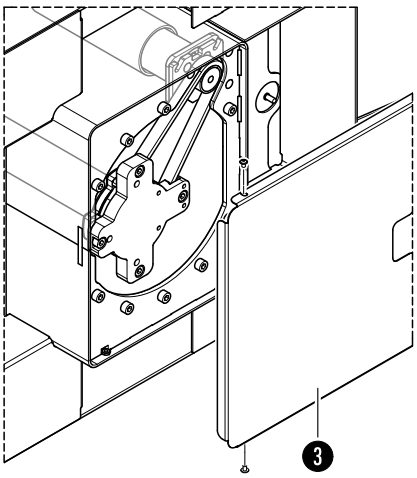
Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
   Note: The lifting position cannot be adjusted if the toothed belt for the main drive is defective.
2. Secure the star wheel (#1800121) on the left side rail [6] of the seat section.
3. **CAUTION**
   Risk of material damage!
   The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.
   Release the brake on the operating table (unlock the operating table).
4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).

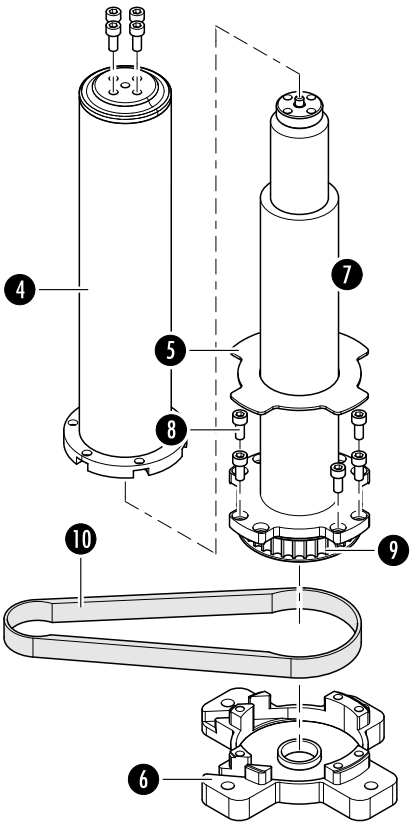


5. Slide the multifunction tool mounted as a T under the table base.
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points down) and set it on the star wheel.
   Important: after placing the table on its side, do not activate the hydraulics system with the column keypad to prevent air from seeping into the hydraulic hoses.



7. Remove the subfloor cover [3] on the table base (4 screws).
8. Remove the telescopic spindle (see chapter 14.10 on page 93).

[6] Side with the column keypad



9. Set the spindle upright and remove the spindle tube [4] upwards (4 screws).
10. Remove the spindle from the bearing shell [6]. To do this, carefully lift the rubber seal [5] on the base of the spindle and unscrew the 6 screws [8]. Pull the telescopic spindle [7] up and out of the bearing shell [6].
11. Remove the toothed belt [10] from the toothed washer [9].

Assembly

1. Place the toothed belt [7] around the toothed washer [6]. Make sure that the teeth are completely engaged. Not tooth on tooth!
2. Insert the telescopic spindle [4] with the toothed washer [6] and toothed belt [7] into the bearing shell [3] and mount it (6 screws).
3. Check the rubber seal [2] and replace it if damaged.
4. **CAUTION**
   Risk of material damage!

   Turning the spindle tube while removing the spindle displaces the end stops of the inner and outer spindles. The spindle should never travel under motorized power to either of the mechanical end stops. During adjustment, the spindle is set such that the lifting function stops before reaching the mechanical end stops.

   Adjusting the spindle (see chapter 24.1 on page 262).
5. Install the spindle (see chapter 14.10 on page 93).
6. Install the lift motor (but do not tighten the screws yet).
7. Tighten the toothed belt:
   a) Check the toothed belt tension with a belt tension meter. The value must be 140 Hz (±5 Hz). If necessary, adjust the

toothed belt tension with the tensioning screw (hexagonal screw).

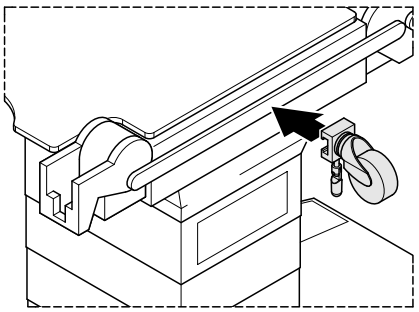
b) Tighten the screws on the lift motor mounting bracket with 7 Nm (4 screws).

c) Check the toothed belt tension and reset if there are differences. The value on the belt tension meter must be 140 Hz (±5 Hz).

8. Attach the subfloor cover (4 screws).
9. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
10. Remove the multifunction tool.
11. Remove the toothed wheel.
12. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
13. Lock operating table (brake)
14. Put on the pad.
15. Calibrate the lift motor (CAN test center). See chapter 24.7 on page 268.
16. Update the software (see the software description from the CAN test center).

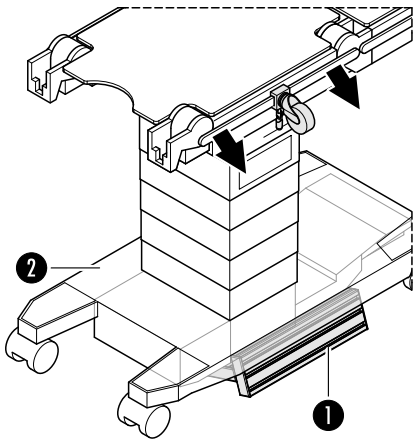
 **TEST**
Perform function test and final check.

14.12 Toothed washer of the telescopic spindle

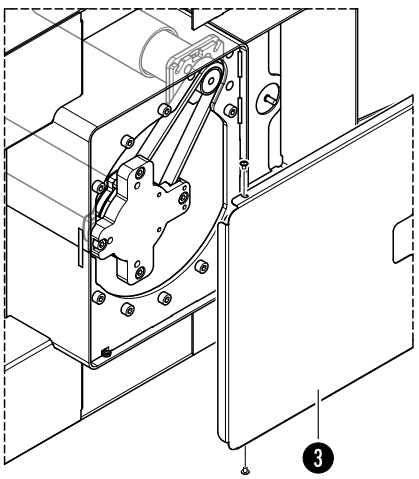


1. Prepare the operating table (see chapter 7 on page 29).
   Note: The lifting position cannot be adjusted if the toothed washer is defective.
2. Secure the star wheel (#1800121) on the left side rail [7] of the seat section.
3. **CAUTION**
   Risk of material damage!
   The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).
4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).

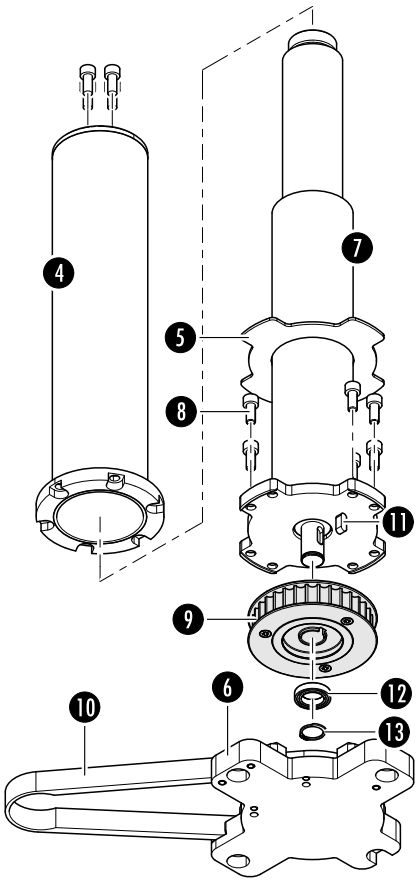


5. Slide the multifunction tool mounted as a T under the table base.
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points down) and set it on the star wheel.
   Important: after placing the table on its side, do not activate the hydraulics system with the column keypad to prevent air from seeping into the hydraulic hoses.



7. Remove the subfloor cover [3] on the table base (4 screws).
8. Remove the telescopic spindle (see chapter 14.10 on page 93).

[7] Side with the column keypad



9. Set the spindle upright and remove the spindle tube [4] upwards (4 screws).
10. Remove the spindle from the bearing shell [6]. To do this, carefully lift the rubber seal [5] on the base of the spindle and unscrew the 6 screws [8]. Pull the telescopic spindle [7] up and out of the bearing shell [6].
11. Remove the toothed belt [10] from the toothed washer [9].
12. Remove the groove ball bearing [12] from the lower end of the telescopic spindle [7] (1 locking ring [13]).
13. Pay attention to the feather key [11]! Remove the toothed washer [9] from the spindle [7].

Assembly

1. Pay attention to the feather key. Carefully place the toothed washer on the spindle.
2. Mount the groove ball bearing on the telescopic spindle (1 locking ring). Important: the locking ring must lock into the groove.
3. Place the toothed belt around the toothed washer. Make sure that the teeth are completely engaged. Not tooth on tooth!
4. Insert the telescopic spindle with the toothed washer and toothed belt into the bearing shell and mount it (6 screws).
5. Check the rubber seal [2] and replace it if damaged.
6.

CAUTION **Risk of material damage!**
Turning the spindle tube while removing the spindle displaces the end stops of the inner and outer spindles. The spindle should never travel under motorized power to either of the mechanical end stops. During adjustment, the spindle is set such that the lifting function stops before reaching the mechanical end stops.

Adjusting the spindle (see chapter 24.1 on page 262).

7. Install the spindle (see chapter 14.10 on page 93).

8. Install the lift motor (but do not tighten the screws yet).
9. Tighten the toothed belt:
   a) Check the toothed belt tension with a belt tension meter. The value must be 140 Hz (±5 Hz). If necessary, adjust the toothed belt tension with the tensioning screw (hexagonal screw).
   b) Tighten the screws on the lift motor mounting bracket with 7 Nm (4 screws).
   c) Check the toothed belt tension and reset if there are differences. The value on the belt tension meter must be 140 Hz (±5 Hz).
10. Attach the subfloor cover (4 screws).
11. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
12. Remove the multifunction tool.
13. Remove the toothed wheel.
14. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
15. Lock operating table (brake)
16. Put on the pad.
17. Calibrate the lift motor (CAN test center). See chapter 24.7 on page 268.
18. Update the software (see the software description from the CAN test center).

 **TEST**
Perform function test and final check.

15 Electrical parts of the column

CAUTION
Risk of personal injury due to conductive parts.

Use extreme caution and care when repairing electrical components. Secure the work area from access by others.

CAUTION
Risk of injury!

Always store tools and removed components securely and make sure no one can trip or fall over them.

CAUTION
Risk of material damage!

Do not let screws, nuts or other parts fall into the operating table! Immediately remove any parts that fell in. Parts that have not been removed can damage other components or cables when the OR table is adjusted. The operating table may not be released to the customer if parts fell in and were not removed.

For all screws ≥ M4 without split lock washers, use a medium-strength screw locking agent.

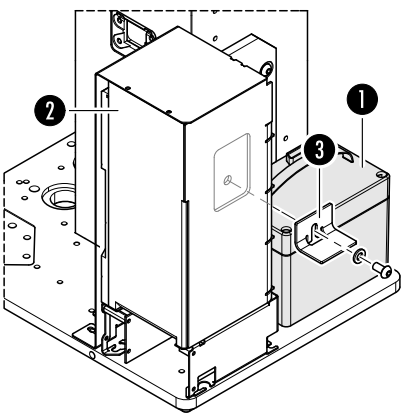
After replacing motors, always reset the level position and update the software.

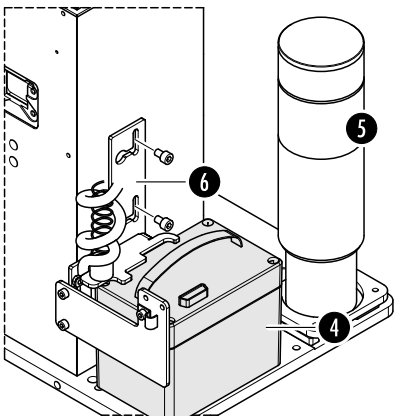
15.1 Battery

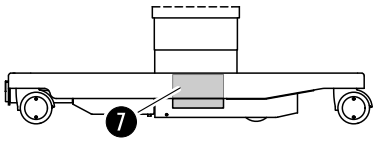
Important: assembly requires serial number. Note chapter 27, on page 276.

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. **only for battery 1** [1] (next to the power supply unit [2]): Remove the battery bracket [3] from the power supply unit (1 screw with washer).







4. **only for battery 2** [4] (next to the lift motor [5]):
   a) Unscrew the spiral cable holder [6] from the guide column (2 screws).
   b) Remove the cover [7] over the coupling point on the side of table base (2 screws).
   c) Pull the plug of cable W172 from the coupling point and push the cable into the column pot.
5. Note the mounting position of the battery!
   Using the carrying strap, carefully lift the battery [1]/[4] up and out.

Assembly

1. Note the original mounting position and correct position of the battery!
   Using the carrying strap, carefully insert the battery into the column pot. The battery must be seated securely on the pins and be parallel to the guide column. Do not allow any cables to get caught under the battery. When installing battery 1, press cable W159 against the column if necessary.
2. **only for battery 1** (next to the power supply unit):
   Mount the battery bracket to the power supply unit (1 screw with washer).
3. **only for battery 2** (next to the lift motor):
   a) Tighten the screws for the spiral cable holder on the guide column.
      Do not jam cables! Place the spiral cable holder onto the two screws on the guide column, slide it carefully along the oblong holes, press it down and attach it (tighten the 2 screws). The spiral cable holder must be positioned exactly on the battery.
   b) Guide the end of cable W172 with the small plug through the side opening in the table base and insert the plug in the coupling point socket from the outside.
   c) Attach the cover over the coupling point on the table base (2 screws).
4. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).

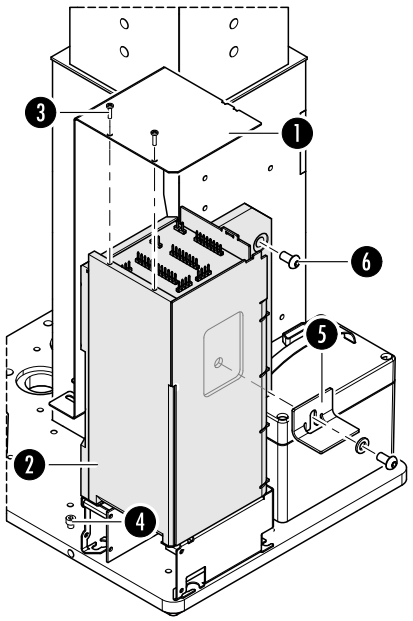
5. Put on the pad.
6. Update the software (see the software description from the CAN test center).

 TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

15.2 Power supply unit

Important: assembly requires serial number. Note chapter 27 on page 276.

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the cable deflector [1] from the power supply unit [2]. To do this, unscrew the 2 screws [3] at the top of the power supply unit and loosen the two screws [4] on the column base. Guide the cable deflector [1] out of the screws [4] on the column base and remove it.
4. Be sure to note the cable routing.
   Pull all plugs from the circuit board at the top of the power supply unit.
5. Pull the ribbon cable plugs from the side of the power supply unit.
6. Remove the battery bracket [5] from the power supply unit (1 screw with washer).
7. Unscrew the power supply unit from the guide column (1 screw [6]) and carefully lift it up and out.

Assembly

1. Note both pins and the connector on the power supply socket. Carefully place the power supply unit on the power supply socket from above and press it in place. Do not catch the ribbon cable.
2. Mount the power supply unit on the guide column (1 screw).
3. Mount the battery bracket to the power supply unit (1 screw with washer).
4. **CAUTION**
   Risk of material damage due to incorrect connections!

   Do not misalign the ribbon cable connector when connecting. Make sure to position the connector correctly.

   Insert the ribbon cable of the connector board (ST2, power supply socket) in the socket on the side of the power supply unit (see circuit diagram on page 295).

5. **CAUTION**
Risk of material damage due to incorrect connector pin assignment!

Do not interchange the battery connections! Maintain the plug and socket assignments (see circuit diagram on page 295).

Restore the original cable routing.

Insert all the plugs into the sockets on the power board (PB1).

6. Set the cable deflector onto the two screws on the column base and slide it flush against the power supply unit. Mount the cable deflector to the power supply unit (2 screws on the top) and tighten the two screws on the column base.
7. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
8. Put on the pad.
9. Update the software (see the software description from the CAN test center).

TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

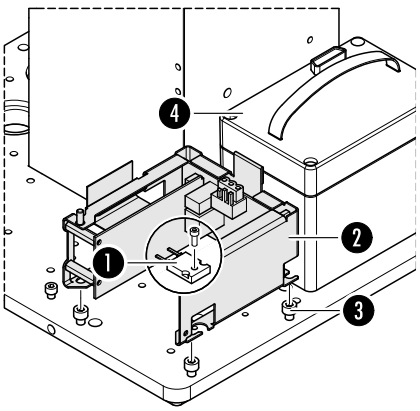
15.3 Power supply socket

Individual parts of the power supply socket are note replaced. In case of defect, the entire power supply socket is replaced.

Important: assembly requires serial number. Note chapter 27 on page 276.

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the power supply unit (see chapter 15.2 on page 109).
4. Unscrew the ground wire of the power supply circuit board from the column base (1 screw with washer and lock washer).
5. Unscrew the connector board (ST2) load resistor [1] from the column base (1 screw).
6. Be sure to note the cable routing.
   Pull all plugs from the boards in the power supply socket [2].
7. Loosen (but do not remove) the 3 screws [3] of the power supply socket [2] on the column base. Move the power supply socket [2] away from the battery [4] and remove.



Assembly

1. Insert and mount the power supply socket in the column pot (3 screws).
2. **CAUTION**
   Risk of material damage due to incorrect connector pin assignment!
   Do not interchange the battery connections! Maintain the plug and socket assignments (see circuit diagram on page 295).

   Restore the original cable routing.
   Insert all the plugs into the sockets on the power supply socket boards.
3. Mount the power supply circuit board ground wire on the column base (1 screw with washer and lock washer).
4. Attach the connector board (ST2) load resistor to the column base (1 screw).
5. Install the power supply unit (see chapter 15.2 on page 109).

6. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
7. Put on the pad.
8. Update the software (see the software description from the CAN test center).

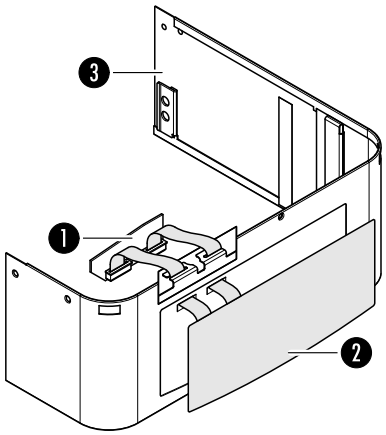
TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

15.4 Column keypad

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Open the column cover at the top and slide it down (see chapter 9 on page 31).
4. Remove the metal panel with the column keypad (see chapter 14.2 on page 77).
5. Remove both plugs from the column keypad adapter circuit board [1].
6. Remove the column keypad [2] from the metal panel [3] (glued).



Assembly

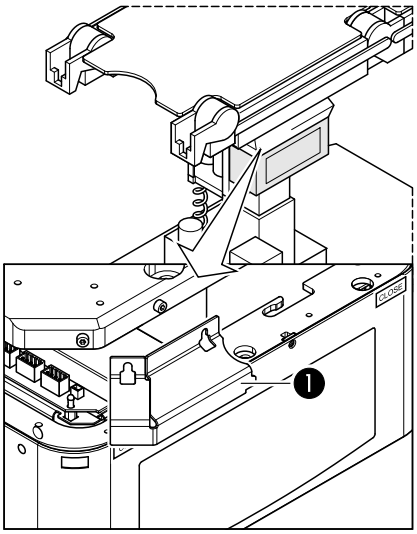
1. Remove any adhesive residue from the metal panel and degrease.
2. Affix the column keypad on the metal panel in the recess provided.
3. Insert the two column keypad connection cable plugs in the column keypad adapter circuit board (see the circuit diagram on page 295).
4. Attach the metal panel with the column keypad (see chapter 14.2 on page 77).
5. Slide the column cover up and close it (see chapter 9 on page 31).
6. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
7. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
8. Put on the pad.
9. Update the software (see the software description from the CAN test center).

TEST
Perform a function test.

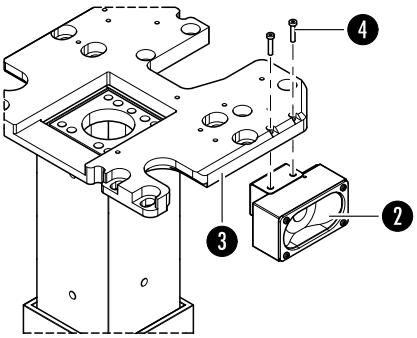
15.5 Speaker

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Open the column cover at the top and slide it down (see chapter 9 on page 31).
4. Detach the bellows from the cover, carefully guide it up and affix it (see chapter 9 on page 31).
5. Loosen the two screws on the deflector plate [1] of the column controller. Push the deflector plate [1] up and remove it.



6. Pull the speaker plug from the column controller.
7. Be sure to note the cable routing.
   Unfasten the connection cable from the column controller to the speaker.
8. Remove the speaker [2] from the suspension plate [3] (from above, 2 screws [4]).



Assembly

1. Attach the speaker to the suspension plate (from above, 2 screws).
2. Restore the original cable routing.
   Route the connection cable and insert the plug in the socket on the column controller (see circuit diagram on page 295).
3. Refasten the connection cable from the column controller to the speaker.
4. Insert the deflector plate of the column controller into the suspension plate and mount it (2 screws).
5. Slide the column cover up and close it (see chapter 9 on page 31).

6. Mount the bellows on the frame (see chapter 9 on page 31).
7. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
8. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
9. Put on the pad.
10. Update the software (see the software description from the CAN test center).

TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

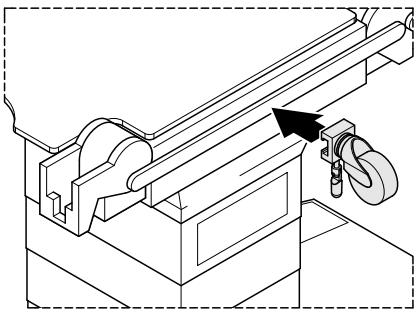
15.6 Lift motor assembly

Important: assembly requires serial number. Note chapter 27 on page 276.

WARNING
Risk of injury from sinking lifting column!

When the lift motor is loosened when the operating table is standing, the table top drops suddenly due to its own weight and this can lead to severe injuries. Turn the operating table on its side before working on the lift motor.

Disassembly



1. Prepare the operating table to the extent possible (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the left side rail [8] of the seat section.
3. **CAUTION**
   Risk of material damage!

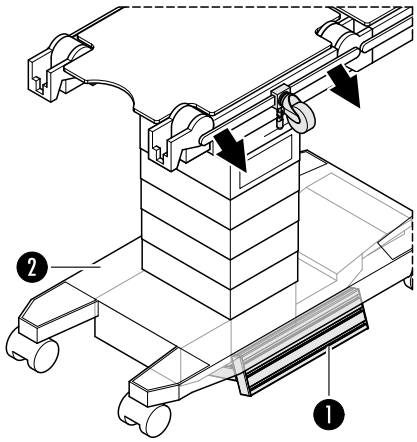
   The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).
4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).

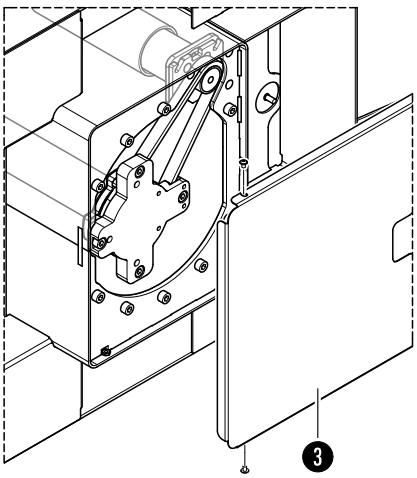
[8] Side with the column keypad

CAUTION
Risk of injury due to electric shock!

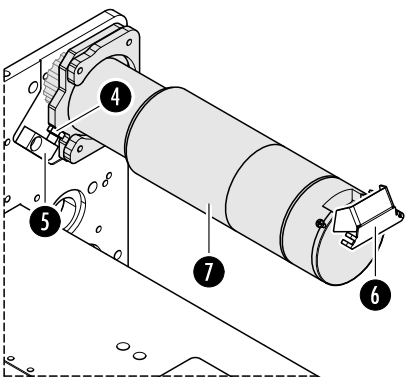
The battery plugs cannot be disconnected when the operating table is set in the lowest lifting position. In this case, work must be done under voltage. Make sure that no functions (e.g., lift, tilt) are carried out on the operating table.



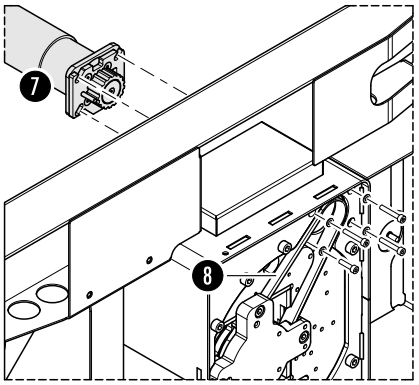
5. Slide the multifunction tool [1] mounted as a T under the table base [2].
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points down) and set it securely on the star wheel.
   After placing the table on its side, do not activate the hydraulics system to prevent air from seeping into the hydraulic hoses.



7. Remove the subfloor cover [3] on the table base (4 screws).
8. If necessary perform an emergency adjustment for the lift so that the parts in the column pot are accessible (see chapter 11 on page 34).
   Then disconnect the power plug from battery 1 and battery 2 if the power supply is still connected.



9. Remove the protective cover [5] on the lift motor [6] (unscrew the 2 screws and carefully pull out the protective cover).
10. Be sure to note the cable routing.
    Disconnect plug and shielded connection of cable W107 from the lift motor [6]. Remove the cable ties
11. Loosen the toothed belt tension: The hexagonal screw [3] on the tensioning device [4] should be almost fully tightened into the tensioning device.



12. Hold the lift motor assembly [6] securely and unscrew from the column base (4 screws with washers).
13. Note the mounting position of the lift motor!
    Carefully remove the lift motor [6] with the motor mounting bracket and pinion from the toothed belt [7] and the column pot.

Assembly

1. Address the motor (see the software description from the CAN test center).
2. **CAUTION**
   Risk of material damage to toothed belt!
   The teeth on the toothed belt pulley and on the toothed belt must securely engage (not tooth on tooth). If necessary, move the lift motor back and forth a little.

   Note the original position of the lift motor (position of the motor mounting bracket). The lift motor connector points forward (toward the foot end).
   Insert the lift motor and place the toothed belt exactly around the pinion.
3. Attach the lift motor to the column base (4 screws with washers, but do not tighten yet). The motor mounting bracket still has to be easy to move.
4. Tighten the toothed belt:
   a) Check the toothed belt tension with a belt tension meter. The value must be 140 Hz (±5 Hz). If necessary, adjust the toothed belt tension with the tensioning screw (hexagonal screw).
   b) Tighten the screws on the lift motor mounting bracket with 7 Nm (4 screws).
   c) Check the toothed belt tension and reset if there are differences. The value on the belt tension meter must be 140 Hz (±5 Hz).
5. Connect the plug and shielded connection of cable W107 to the lift motor (see circuit diagram on page 295).
6. Mount the subfloor cover on the table base (4 screws).
7. Restore cable W107 to its original position and connection!
8. Attach the protective cover to the lift motor (2 screws).
9. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person

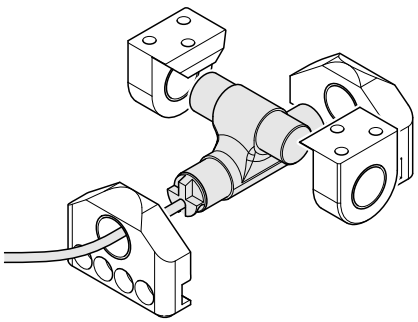
is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.

10. Remove the multifunction tool.
11. Remove the toothed wheel.
12. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
13. Lock operating table (brake)
14. Put on the pad.
15. Calibrate the lift motor (CAN test center). See chapter 24.7 on page 268.
16. Update the software (see the software description from the CAN test center).

TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

15.7 Trendelenburg assembly



CAUTION
Risk of material damage! Handle the power sensor (cardan) with care.

The power sensor is a sensitive component and can easily break. Follow these instructions when handling the sensor:

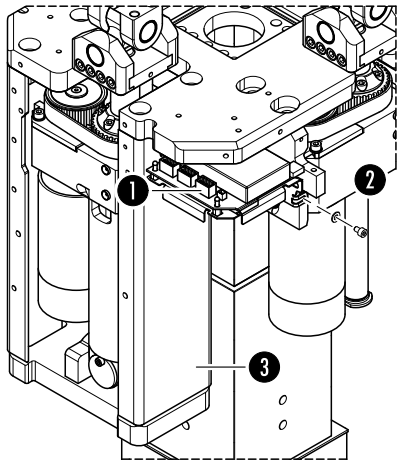
- Do not allow the sensor to touch magnets.
- Do not jolt the sensor (e.g. by knocking off attached parts with a hammer).
- Always store the sensors for the different drives separately from one another and make sure there is sufficient space between them.
- Do not open the sensor or remove it from the cardan.
- Do not allow the sensor to touch e.g. a micrometer screw or caliper gauge; they might be magnetized.
- Do not twist the plastic parts on the sensor or reposition them in any way.

Important: assembly requires serial number. Note chapter 27 on page 276.

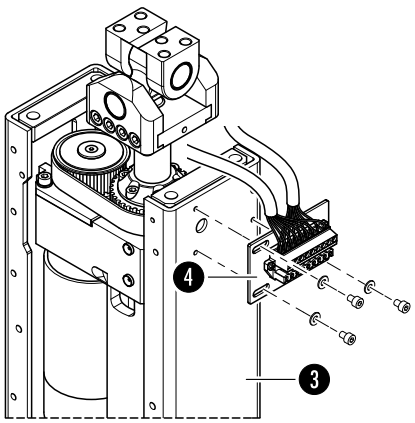
Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).

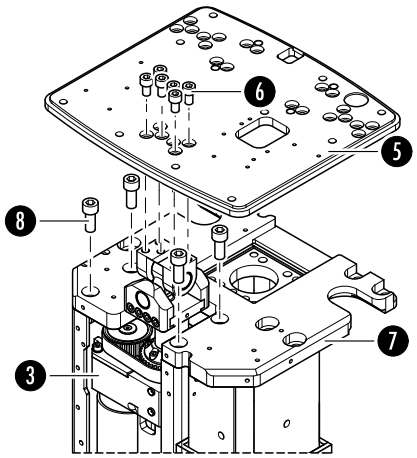
3. Remove the table top (see chapter 12.1 on page 38).
4. Remove the bellows (see chapter 14.3 on page 78).
5. Grasp the column cover, remove the holding screw from the Trendelenburg assembly and guide the cover carefully downward.
6. Open the column cover at the top and slide it down (see chapter 9 on page 31).
7. Remove the metal panel with the column keypad (see chapter 14.2 on page 77).
8. Remove the frame (connection ring) (see chapter 14.4 on page 79).
9. Disconnect plug and shielded connection of cable W110 from the Trendelenburg motor.
10. Be sure to note the cable routing.
    Remove the cable attachment from the Trendelenburg assembly and the suspension plate.



11. Unscrew the column controller [1] from the tilt right assembly [2] (1 screw with washer), carefully disconnect it from the plug contact (W164) on the Trendelenburg assembly [3] and place on non-conductive material of the column.



12. Be sure to note the cable routing.
    Unscrew the holder with plug contact (W164) [4] from the Trendelenburg assembly [3] (3 screws with washers).
13. Be sure to note the cable routing.
    Remove the cable attachment for the sensor cable under the mounting plate.



14. Unscrew the Trendelenburg assembly [3] from the mounting plate [5] (6 screws [6]).

15.

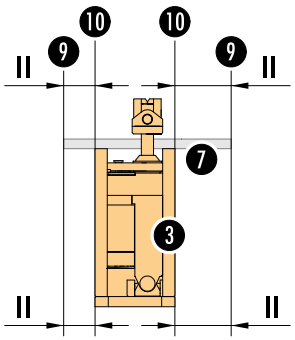
CAUTION
Risk of injury due to falling assembly!

Grasp the Trendelenburg assembly when unscrewing the screws on the suspension plate.

Remove the Trendelenburg assembly [3] from the suspension plate [7] (4 screws [8]).

Assembly

1. Address the motor (see the software description from the CAN test center).
2. Insert the Trendelenburg assembly and attach to the mounting plate with the bearing blocks (6 screws, but do not tighten).
3. Attach the Trendelenburg assembly to the suspension plate (4 screws with washers, but do not tighten yet).



4.

CAUTION
Risk of material damage!

Material wear due to improper assembly! The outer edges [9] of the suspension plate [7] must be parallel to the outer edges [10] of the Trendelenburg assembly [3].

Tighten the screws for securing the Trendelenburg assembly to the mounting plate and suspension plate.

5. Restore the original cable routing.
   Mount the holder with plug contact (W164) to the Trendelenburg assembly (3 screws with washers).
6. Connect the column controller to the plug contact (W164) on the Trendelenburg assembly and mount it on the tilt right assembly (1 screw with washer).
7. Connect the plug and shielded connection of cable W110 to the Trendelenburg motor (see circuit diagram on page 295).
8. Restore the original cable routing and cable attachment.

9.

CAUTION
Risk of material damage!

Check the cable routing and attachment and make sure that the cable cannot get between moving parts.

10. Attach the frame (connection ring) (see chapter 14.4 on page 79).
11. Attach the bellows (see chapter 14.3 on page 78).

12. Attach the table top (see chapter 12.1 on page 38).
13. Attach the cover to the center box (see chapter 12.3 on page 41).
14. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
15. Attach the metal panel with the column keypad (see chapter 14.2 on page 77).
16. Slide the column cover up and close it (see chapter 9 on page 31).
17. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
18. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
19. Put on the pad.
20. Calibrate the Trendelenburg motor (CAN test center). See chapter 24.6 on page 267.
21. Update the software (see the software description from the CAN test center).

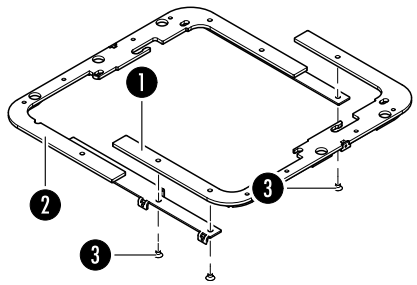
 **TEST**
Perform recheck according to IEC 60601-1; perform function test and final check.

15.8 Tilt right assembly

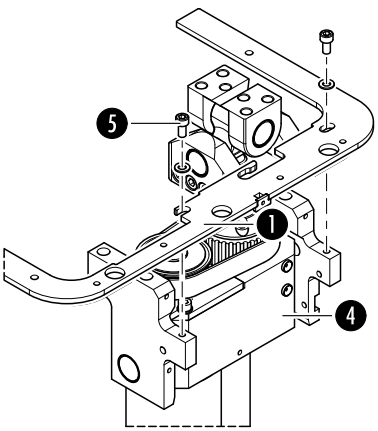
Important: assembly requires serial number. Note chapter 27 on page 276.

Disassembly

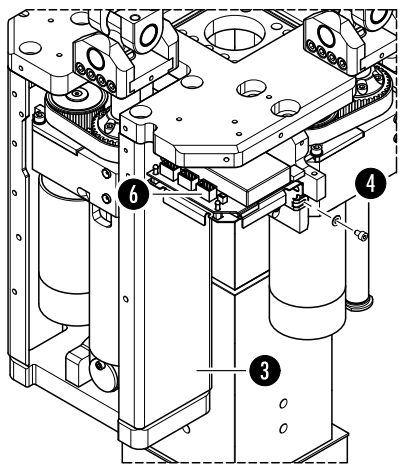
1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the table top (see chapter 12.1 on page 38).
4. Remove the bellows (see chapter 14.3 on page 78).
5. Grasp the column cover, remove the holding screw from the Trendelenburg assembly and guide the cover carefully downward.
6. Open the column cover at the top and slide it down (see chapter 9 on page 31).
7. Remove the metal panel with the column keypad (see chapter 14.2 on page 77).
8. Separate the frame pieces [1]/[2] from one another (3 screws [3] from below).

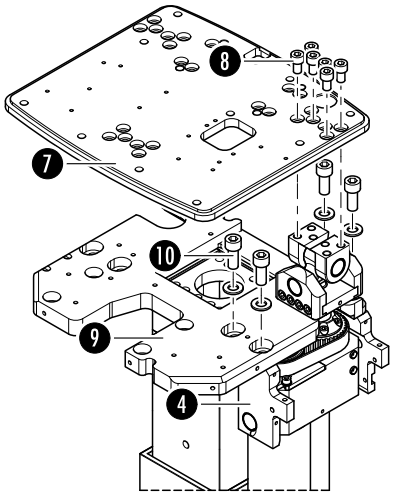


9. Detach frame piece 1 [1] from the tilt right assembly [4] (2 screws [5] with washers).
10. Disconnect plug and shielded connection of cable W109 from the tilt right motor.
11. Be sure to note the cable routing.
    Unfasten the cables from the tilt right assembly.



12. Unscrew the column controller [6] from the tilt right assembly [4] (1 screw with washer).





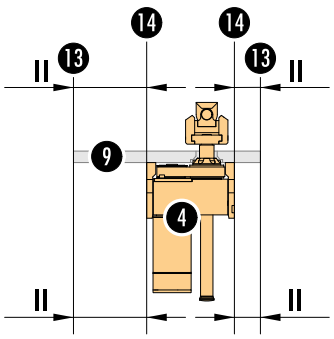
13. Unscrew the tilt right assembly [4] from the mounting plate [7] (6 screws [8]).
14. **CAUTION**
Risk of injury due to falling assembly!

Grasp the tilt right assembly when unscrewing the screws on the suspension plate.

Remove the tilt right assembly [4] from the suspension plate [9] (4 screws [10] with washers).

Assembly

1. Address the motor (see the software description from the CAN test center).
2. Insert the tilt right assembly and attach to the mounting plate with the bearing blocks (6 screws, but do not tighten).
3. Attach the tilt right assembly to the suspension plate (4 screws with washers, but do not tighten yet).



4. **CAUTION**
Risk of material damage!

Material wear due to improper assembly! The outer edges [13] of the suspension plate [9] must be parallel to the outer edges [14] of the tilt right assembly [4].

Tighten the screws for securing the tilt right assembly to the mounting plate and suspension plate.

5. Attach the column controller to the tilt right assembly (1 screw with washer).
6. Connect the plug and shielded connection of cable W109 to the tilt right motor (see circuit diagram on page 295).
7. Restore the original cable routing and cable attachment.
8. **CAUTION**
Risk of material damage!

Check the cable routing and attachment and make sure that the cable cannot get between moving parts.

9. Attach frame piece 1 to frame piece 2 (3 screws from below).
10. Attach frame piece 1 to the tilt right assembly (2 screws with washers).
11. Attach the bellows (see chapter 14.3 on page 78).
12. Attach the table top (see chapter 12.1 on page 38).

13. Attach the cover to the center box (see chapter 12.3 on page 41).
14. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
15. Attach the metal panel with the column keypad (see chapter 14.2 on page *77*).
16. Slide the column cover up and close it (see chapter 9 on page 31).
17. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
18. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
19. Put on the pad.
20. Calibrate the tilt motor (CAN test center). See chapter 24.6 on page *267*.
21. Update the software (see the software description from the CAN test center).

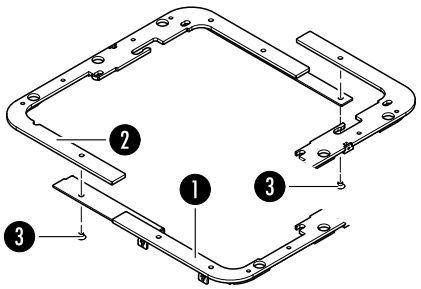
 **TEST**
Perform recheck according to IEC 60601-1; perform function test and final check.

15.9 Tilt left assembly

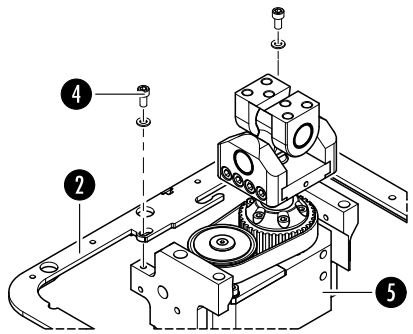
Important: assembly requires serial number. Note chapter 27 on page 276.

Disassembly

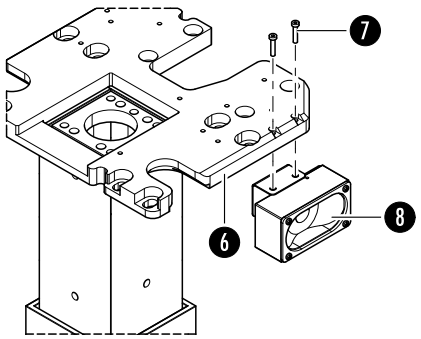
1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the table top (see chapter 12.1 on page 38).
4. Remove the bellows (see chapter 14.3 on page 78).
5. Grasp the column cover, remove the holding screw from the Trendelenburg assembly and guide the cover carefully downward.
6. Open the column cover at the top and slide it down (see chapter 9 on page 31).
7. Separate the frame pieces [1]/[2] from one another (2 screws [3] from below).



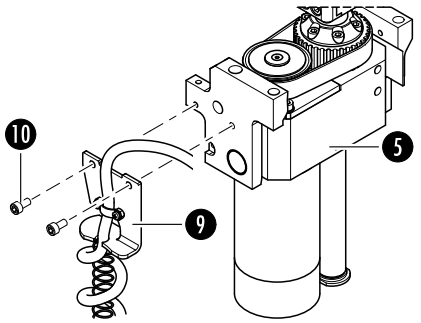
8. Detach frame piece 2 [2] from the tilt left assembly [5] (2 screws [4] with washers).
9. Disconnect plug and shielded connection of cable W108 from the tilt left motor.
10. Be sure to note the cable routing.
    Unfasten the cables from the tilt left assembly.

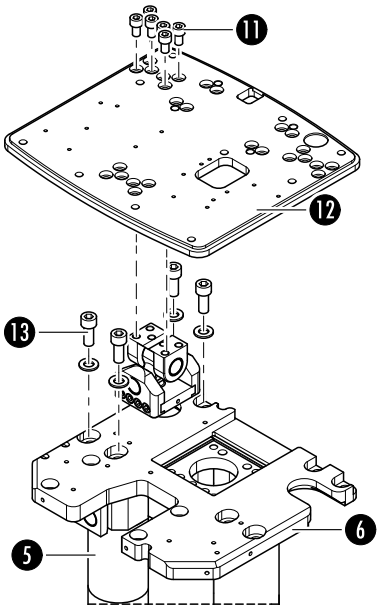


11. Unscrew the speaker [8] from the suspension plate [6] (from above, 2 screws [7]) and place them securely on the column.



12. Remove the spiral cable holder [9] of cables W164 and W104 from the tilt left assembly [5] (2 screws each [10]).





13. Unscrew the tilt left assembly [5] from the mounting plate [12] (6 screws [11]).

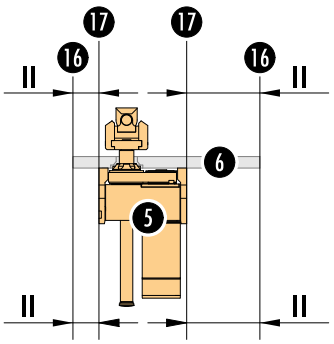
14. **CAUTION**
Risk of injury due to falling assembly!

Grasp the tilt right assembly when unscrewing the screws on the suspension plate.

Remove the tilt left assembly [5] from the suspension plate [6] (4 screws [13] with washers).

Assembly

1. Address the motor (see the software description from the CAN test center).
2. Insert the tilt left assembly and attach to the mounting plate with the bearing blocks (6 screws, but do not tighten).
3. Attach the tilt left assembly to the suspension plate (4 screws with washers, but do not tighten yet).



4. **CAUTION**
Risk of material damage!

Material wear due to improper assembly! The outer edges [16] of the suspension plate [6] must be parallel to the outer edges [17] of the tilt left assembly [5].

Tighten the screws for securing the tilt left assembly to the mounting plate and suspension plate.

5. Install the spiral cable holder of cables W164 and W104 to the tilt left assembly (2 screws each).
6. Attach the speaker to the suspension plate (from above, 2 screws).
7. Connect the plug and shielded connection of cable W108 to the tilt left motor (see circuit diagram on page 295).
8. Restore the original cable routing and cable attachment.
9. **CAUTION**
Risk of material damage!

Check the cable routing and attachment and make sure that the cable cannot get between moving parts.

10. Attach frame piece 2 to frame piece 1 (2 screws from below).

11. Attach frame piece 2 to the tilt left assembly (2 screws with washers).
12. Attach the bellows (see chapter 14.3 on page 78).
13. Attach the table top (see chapter 12.1 on page 38).
14. Attach the cover to the center box (see chapter 12.3 on page 41).
15. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
16. Slide the column cover up and close it (see chapter 9 on page 31).
17. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
18. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
19. Put on the pad.
20. Calibrate the tilt motor (CAN test center). See chapter 24.6 on page 267.
21. Update the software (see the software description from the CAN test center).

TEST

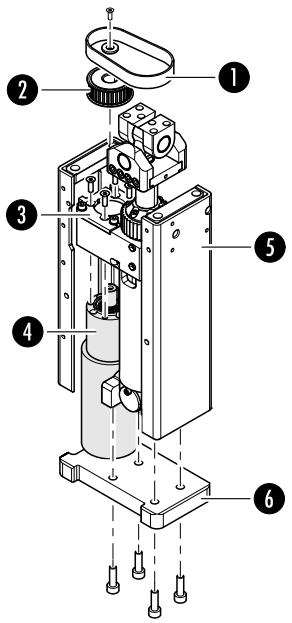
Perform recheck according to IEC 60601-1; perform function test and final check.

15.10 Trendelenburg motor

Important: assembly requires serial number. Note chapter 27 on page 276.

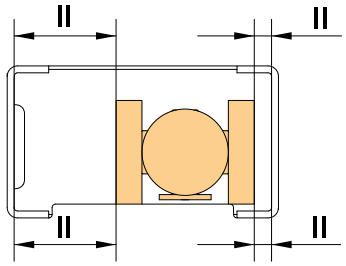
Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the table top (see chapter 12.1 on page 38).
4. Remove the bellows (see chapter 14.3 on page 78).
5. Grasp the column cover, remove the holding screw from the Trendelenburg assembly and guide the cover carefully downward.
6. Open the column cover at the top and slide it down (see chapter 9 on page 31).
7. Remove the metal panel with the column keypad (see chapter 14.2 on page 77).
8. Remove the frame (connection ring) (see chapter 14.4 on page 79).
9. Remove the Trendelenburg assembly (see chapter 15.7 on page 118).
10. Remove the toothed belt [1] and toothed belt pulley [2] from the Trendelenburg drive (see chapter 14.5 on page 81).
11. Remove the floor plate [6] from the suspension [5] (4 screws).
12. Grasp the motor [4] securely and note the installation position of the connector on the motor.
    Remove the 4 screws from the motor mounting bracket [3] and pull the motor [4] down out of the plate.



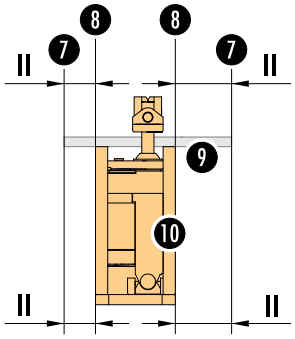
Assembly

1. Address the motor (see the software description from the CAN test center).
2. Note the original installation position of the motor and the connector on the motor.
   From below, carefully insert the motor in the plate and mount it to the motor mounting bracket (4 screws).



3. **CAUTION**
   Risk of material damage to cardan bearings!
   Material wear due to improper assembly! During installation, make sure the assemblies are parallel!

   Mount floor plate to the suspension (4 screws from below).



4. Mount the toothed belt pulley and toothed belt on the Trendelenburg drive and tighten the toothed belt (see chapter 14.5 on page 81).

5. **CAUTION**
Risk of material damage!

Material wear due to improper assembly! The outer edges [7] of the suspension plate [9] must be parallel to the outer edges [8] of the Trendelenburg assembly [10].

Install the Trendelenburg assembly (see chapter 15.7 on page 118).

6. Attach the frame (connection ring) (see chapter 14.4 on page 79).
7. Attach the bellows (see chapter 14.3 on page 78).
8. Attach the table top (see chapter 12.1 on page 38).
9. Attach the cover to the center box (see chapter 12.3 on page 41).
10. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
11. Attach the metal panel with the column keypad (see chapter 14.2 on page 77).
12. Slide the column cover up and close it (see chapter 9 on page 31).
13. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
14. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
15. Put on the pad.
16. Calibrate the Trendelenburg motor (CAN test center). See chapter 24.6 on page 267.
17. Update the software (see the software description from the CAN test center).

TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

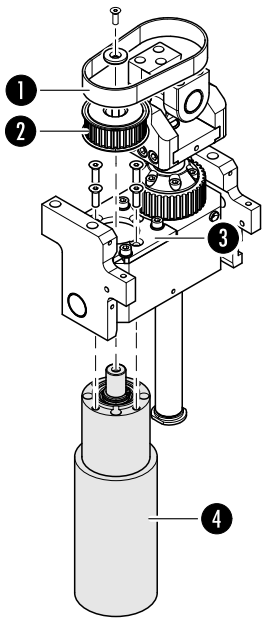
15.11 Tilt right motor

Important: assembly requires serial number. Note chapter 27 on page 276.

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the table top (see chapter 12.1 on page 38).
4. Remove the bellows (see chapter 14.3 on page 78).
5. Grasp the column cover, remove the holding screw from the Trendelenburg assembly and guide the cover carefully downward.
6. Open the column cover at the top and slide it down (see chapter 9 on page 31).
7. Remove the metal panel with the column keypad (see chapter 14.2 on page 77).
8. Remove the tilt right assembly (see chapter 15.8 on page 122).
9. Remove the toothed belt [1] and toothed belt pulley [2] from the tilt drive (see chapter 14.6 on page 84).
10. Grasp the motor [4] securely and note the installation position of the connector on the motor.

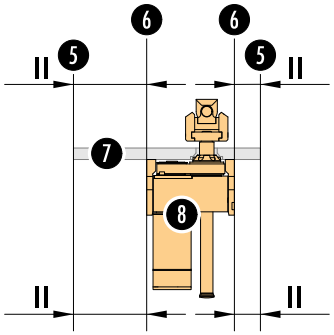
    Remove the 4 screws from the motor mounting bracket [3] and pull the motor [4] down out of the plate.



Assembly

1. Address the motor (see the software description from the CAN test center).
2. Note the original installation position of the motor and the connector on the motor.

   From below, carefully insert the motor in the plate and mount it to the motor mounting bracket (4 screws).
3. Mount the toothed belt pulley and toothed belt on the tilt drive and tighten the toothed belt (see chapter 14.6 on page 84).



4.

CAUTION
Risk of material damage!

Material wear due to improper assembly! The outer edges [5] of the suspension plate [7] must be parallel to the outer edges [6] of the tilt right assembly [8].

Install the tilt right assembly (see chapter 15.8 on page 122).

5. Attach the bellows (see chapter 14.3 on page 78).
6. Attach the table top (see chapter 12.1 on page 38).
7. Attach the cover to the center box (see chapter 12.3 on page 41).
8. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
9. Attach the metal panel with the column keypad (see chapter 14.2 on page 77).
10. Slide the column cover up and close it (see chapter 9 on page 31).
11. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
12. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
13. Put on the pad.
14. Calibrate the tilt motor (CAN test center). See chapter 24.6 on page 267.
15. Update the software (see the software description from the CAN test center).

TEST

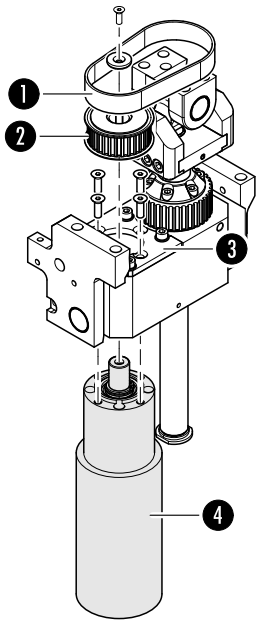
Perform recheck according to IEC 60601-1; perform function test and final check.

15.12 Tilt left motor

Important: assembly requires serial number. Note chapter 27 on page 276.

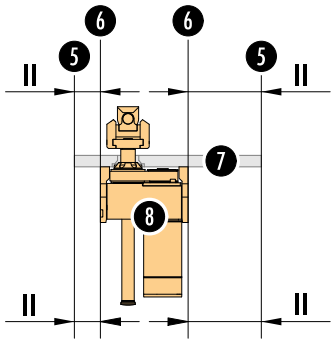
Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the table top (see chapter 12.1 on page 38).
4. Remove the bellows (see chapter 14.3 on page 78).
5. Grasp the column cover, remove the holding screw from the Trendelenburg assembly and guide the cover carefully downward.
6. Open the column cover at the top and slide it down (see chapter 9 on page 31).
7. Remove the tilt left assembly (see chapter 15.9 on page 125).
8. Remove the toothed belt [1] and toothed belt pulley [2] from the tilt drive (see chapter 14.7 on page 87).
9. Grasp the motor [4] securely and note the installation position of the connector on the motor.
   Remove the 4 screws from the motor mounting bracket [3] and pull the motor [4] down out of the plate.



Assembly

1. Address the motor (see the software description from the CAN test center).
2. Note the original installation position of the motor and the connector on the motor.
   From below, carefully insert the motor in the plate and mount it to the motor mounting bracket (4 screws).
3. Mount the toothed belt pulley and toothed belt on the tilt drive and tighten the toothed belt (see chapter 14.7 on page 87).



4.

CAUTION
Risk of material damage!

Material wear due to improper assembly! The outer edges [5] of the suspension plate [7] must be parallel to the outer edges [6] of the tilt left assembly [8].

Install the tilt left assembly (see chapter 15.9 on page 125).

5. Attach the bellows (see chapter 14.3 on page 78).
6. Attach the table top (see chapter 12.1 on page 38).
7. Attach the cover to the center box (see chapter 12.3 on page 41).
8. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
9. Slide the column cover up and close it (see chapter 9 on page 31).
10. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
11. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
12. Put on the pad.
13. Calibrate the tilt motor (CAN test center). See chapter 24.6 on page 267.
14. Update the software (see the software description from the CAN test center).

TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

15.13 Connector / power supply / relay board (power supply socket)

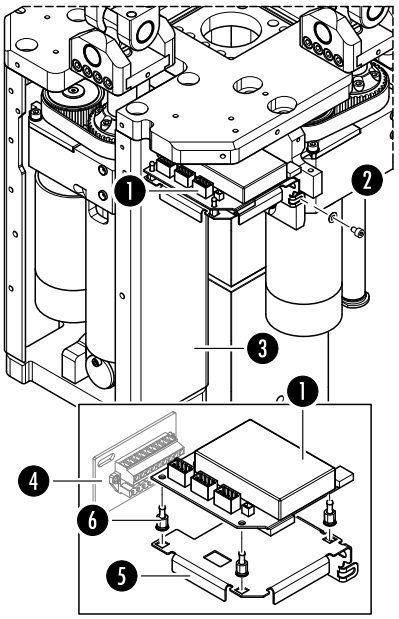
The boards are contained in the power supply socket that requires a serial number. If one of the boards is defective, the power supply socket is replaced (see chapter 15.3 on page 111).

15.14 Column controller circuit board

Important: assembly requires serial number. Note chapter 27 on page 276.

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Detach the bellows from the cover, carefully guide it up and affix it (see chapter 9 on page 31).
4. Grasp the column cover, remove the holding screw from the Trendelenburg assembly and guide the cover carefully downward.
5. Open the column cover at the top and slide it down (see chapter 9 on page 31).
6. Remove the metal panel with the column keypad (see chapter 14.2 on page 77).



7. Unscrew the column controller [1] from the tilt right assembly [2] (1 screw with washer).
8. Carefully remove the column controller [1] from the plug contact (W164) [4] on the Trendelenburg assembly [3].
9. Be sure to note the cable routing.
   Remove all plugs from the column controller circuit board.
10. Remove the column controller circuit board from the retaining plate [5] (4 spacers [6]).

Assembly

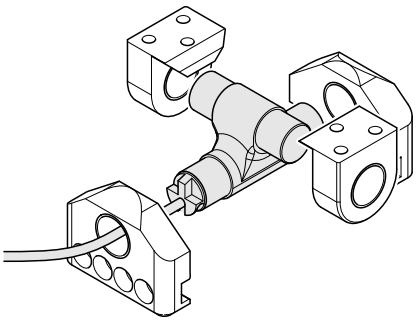
1. Clip the column controller circuit board onto the retaining plate (4 spacers).
2. **CAUTION**
   Risk of material damage due to incorrect connector pin assignment!
   Do not interchange the connections! Maintain the plug and socket assignments (see circuit diagram on page 295).

   Restore the original cable routing.
   Insert all the plugs into the sockets on the circuit board.

3. Connect the column controller to the plug contact (W164) on the Trendelenburg assembly.
4. Attach the column controller to the tilt right assembly (1 screw with washer).
5. Mount the bellows on the frame (see chapter 9 on page 31).
6. Attach the metal panel with the column keypad (see chapter 14.2 on page 77).
7. Slide the column cover up and close it (see chapter 9 on page 31).
8. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
9. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
10. Put on the pad.
11. Update the software (see the software description from the CAN test center).

 **TEST**
Perform recheck according to IEC 60601-1; perform function test and final check.

15.15 Cardan with sensor (Trendelenburg drive)



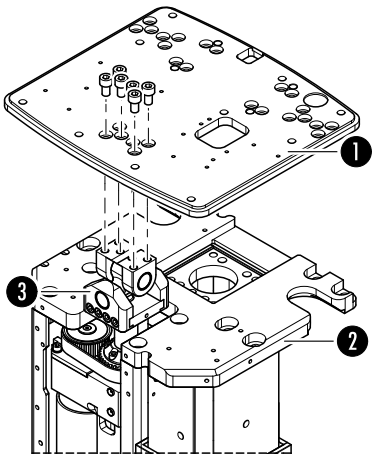
CAUTION
Risk of material damage! Handle the power sensor (cardan) with care.

The power sensor is a sensitive component and can easily break. Follow these instructions when handling the sensor:

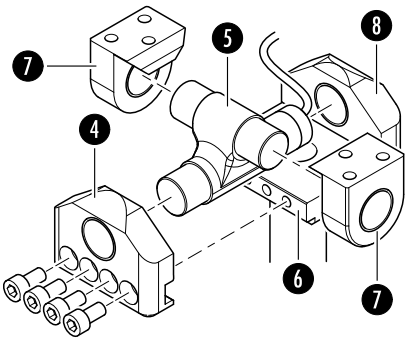
- Do not allow the sensor to touch magnets.
- Do not jolt the sensor (e.g. by knocking off attached parts with a hammer).
- Always store the sensors for the different drives separately from one another and make sure there is sufficient space between them.
- Do not open the sensor or remove it from the cardan.
- Do not allow the sensor to touch e.g. a micrometer screw or caliper gauge; they might be magnetized.
- Do not twist the plastic parts on the sensor or reposition them in any way.

Important: assembly requires serial number. Note chapter 27 on page 276.

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the table top (see chapter 12.1 on page 38).
4. Remove the bellows (see chapter 14.3 on page 78).
5. Be sure to note the cable routing.
   Remove the cable attachment for the sensor cable under the mounting plate.
6. Unscrew the Trendelenburg drive [3] from the mounting plate [1] (6 screws).



7. Unscrew the outer bearing [4] from the drive assembly (4 screws).
8. **CAUTION**
   Risk of material damage if the drive is twisted.

   Do not twist the freestanding drive assembly after removing it from the mounting plate. The motor calibration is lost and must be repeated if the spindle is twisted.

   Carefully knock (nylon hammer) the outer bearing [4] from the cardan [5] and the bearing plate [6].

9. Carefully knock (nylon hammer) the cardan [5] with the two bearing blocks [7] from the inner bearing [8].
10. Remove the bearing blocks [7] from the cardan [5].

Assembly

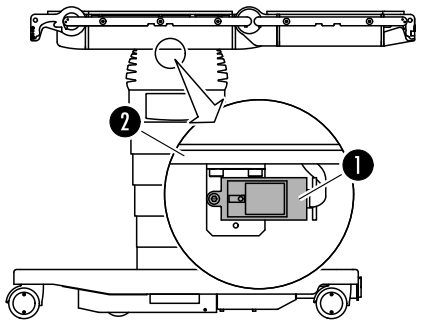
1. Slide both the right and left bearing blocks on the short shafts (without sensor) of the cardan.
2. Note the original mounting position of the cardan. Do not twist the spindle on the drive.
   Guide the sensor cable through the inner bearing and insert the cardan into the bearing. Use blow-back-proof nylon hammer, if needed.
3. Attach the outer bearing to the cardan and the bearing plate (4 screws). Use blow-back-proof nylon hammer, if needed.
4. Attach the mounting plate to the bearing blocks of the drive assembly (6 screws).
5. Restore the sensor cable to its original position and connection.
6. Remove the support between the suspension plate and the mounting plate.
7. Attach the bellows (see chapter 14.3 on page 78).
8. Attach the table top (see chapter 12.1 on page 38).
9. Attach the cover to the center box (see chapter 12.3 on page 41).
10. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
11. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
12. Put on the pad.

TEST
Perform function test and final check.

15.16 ISM module circuit board

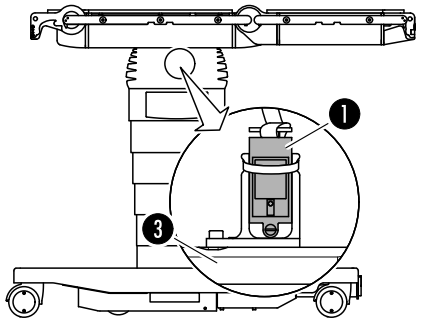
The ISM module is not available on all operating table versions.

15.16.1 Option A



The holder is located on the underside of the mounting plate [2] (left side) in the ISM module [1]. The ISM module must be retrofitted. See chapter 15.17 on page 141.

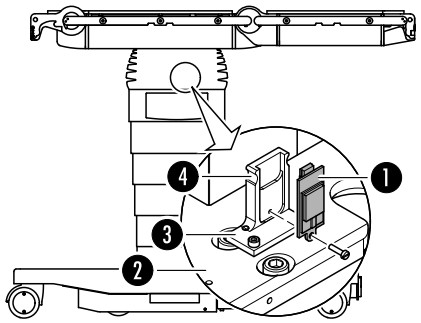
15.16.2 Option B



The holder is fitted on the top of the suspension plate [3] (left side) in the ISM module [1].

Important: assembly requires serial number. Follow chapter 27 on page 276.

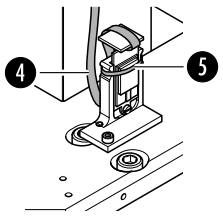
Disassembly

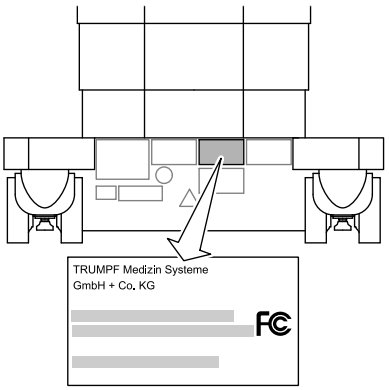


1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Detach the bellows from the cover, carefully guide it up and affix it (see chapter 9 on page 31).
4. Pull the cable tie from the ISM module (the holder containing the ISM module is located on the top of the suspension plate [2] - left side).
5. Remove the plug from the ISM module [1].
6. Note the mounting position of the ISM module.
   Remove the ISM module from the holder [3] (1 plastic screw).

Assembly

1. Note the original mounting position of the ISM module.
   Install the ISM module on the holder (1 plastic screw).





2. Insert the cable adapter plug into the ISM module socket.
3. Secure the cable adapter [5] with a cable tie [6] on the ISM module. The holder features side notches [4] for the cable tie.
4. Mount the bellows on the frame (see chapter 9 on page 31).
5. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
6. Put on the pad.
7. Replace the sticker with the authorization code on the table base:
   a) Remove old sticker.
   b) Remove any adhesive residue from the table base and degrease.
   c) Fix new sticker in the same position.
8. Update the software (see the software description from the CAN test center).

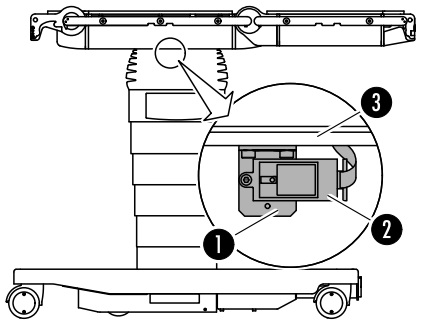
TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

15.17 Retrofit ISM module (Mat. No. 2064680)

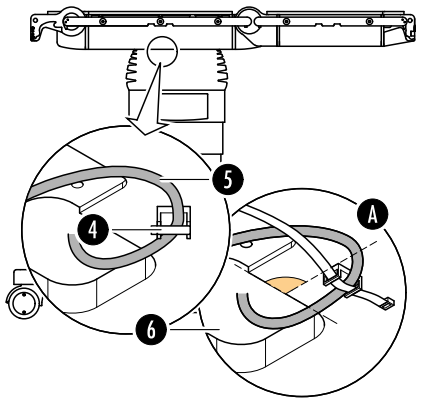
Important: assembly requires serial number. Follow chapter 27 on page 276.

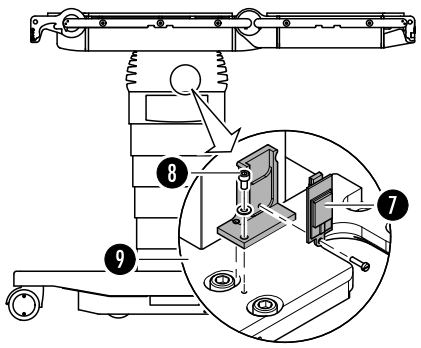
Disassembly

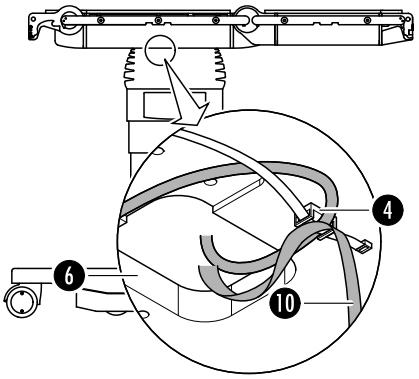
1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Detach the bellows from the cover, carefully guide it up and affix it (see chapter 9 on page 31).
4. Remove the cable adapter plug from the underside of the motor controller circuit board. The motor controller circuit board can be accessed through the opening in the mounting plate.
5. Unscrew the holder [1] with the ISM module [2] from the mounting plate [3] (2 screws).



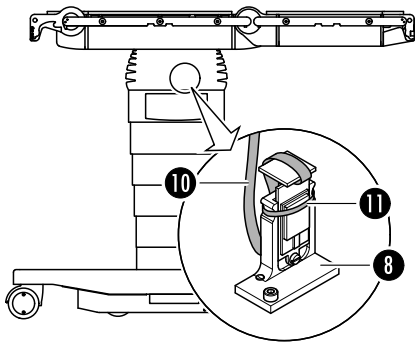
6. Adjust the position of the cable holder [4]:
   a) Remove the cable tie of the gray lead (Trendelenburg power sensor) [5] on the underside of the mounting plate.
   b) Loosen the screw on the cable holder.
   c) Turn the cable holder so that it is at right angles to the opening [6] in the mounting plate [A].
   d) Tighten screw.
   e) Refasten the cable (Trendelenburg power sensor) with the new cable tie. Do not close the cable tie yet.
7. Unpack the new ISM module on a clean and dry work surface (1 plastic screw).
8. Secure the ISM module [7] from the new holder [8] (1 plastic screw).
9. Fit the holder [8] with the ISM module [7] to the top of the suspension plate [9] (1 screw with disc).
10. Insert the new cable adapter plug into the ISM module socket.







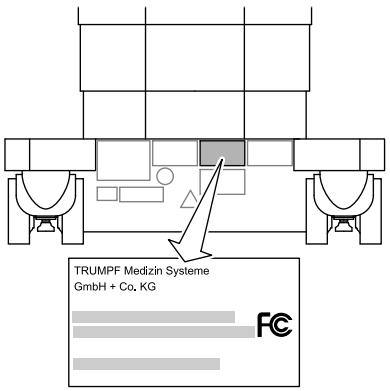
11. Pull the cable adapter [10] straight up and secure to the cable holder [4] (with Trendelenburg cable power sensor). Ensure that the cable adapter can move in a straight direction.
12. Turn the cable adapter [10] between the upper attachment point [4] and the opening [6] in the middle cabinet by 180°, and then plug in the plug from below in the socket of the motor controller circuit board.



13. Secure the cable adapter [10] with a cable tie [11] on the ISM module [8].
14. **TEST**

    Perform a function test.

    Check position of cable. The cable adapter must not hang too loose or be stretched too taut between the upper attachment point (mounting plate) and the ISM module.
15. Mount the bellows on the frame (see chapter 9 on page 31).
16. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
17. Put on the pad.



18. Replace the sticker with the authorization code on the table base:
    a) Remove old sticker.
    b) Remove any adhesive residue from the table base and degrease.
    c) Fix new sticker from the retrofit kit in the same position.
19. Update the software (see the software description from the CAN test center).

TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

20. Completely fill in the form (doc. no. 4900568) from the retrofit set, and fax or mail to Trumpf Medical technical customer service.

16 Mechanical parts of the table base

CAUTION
Risk of injury!

Always store tools and removed components securely and make sure no one can trip or fall over them.

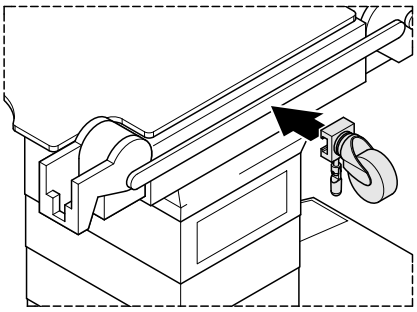
CAUTION
Risk of material damage!

Do not let screws, nuts or other parts fall into the operating table! Immediately remove any parts that fell in. Parts that have not been removed can damage other components or cables when the OR table is adjusted. The operating table may not be released to the customer if parts fell in and were not removed.

For all screws ≥ M4 without split lock washers, use a medium-strength screw locking agent.

16.1 Wheel

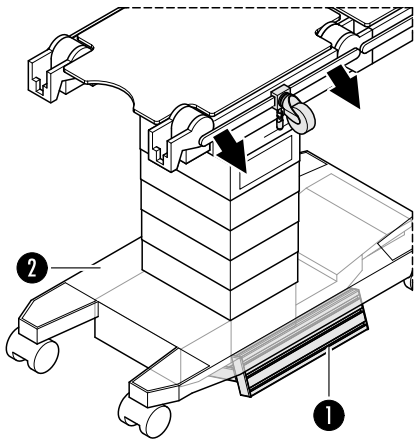
Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the side rail of the seat section.
3.

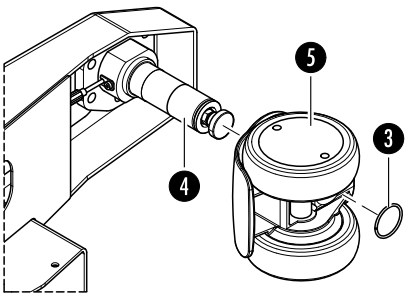
> **CAUTION**
> **Risk of material damage!**
>
> The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).
4. Turn off the operating table.



5. Slide the multifunction tool mounted as a T under the table base.
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool and set it on the star wheel.

   Important: after placing the table on its side, do not activate the hydraulics system with the column keypad to prevent air from seeping into the hydraulic hoses.



7. Remove the spring ring [3] from the floor lock [4] and pull off the wheel [5].

Assembly

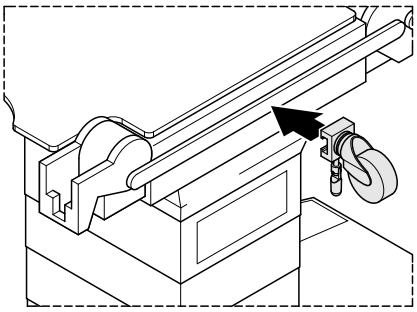
1. Slide the wheel onto the floor lock up to the stop.
2. Secure the spring ring in the groove of the floor lock.
3. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
4. Remove the multifunction tool.
5. Remove the toothed wheel.

6. Switch on the operating table (see chapter 10 on page 33).
7. Lock operating table (brake)
8. Put on the pad.

 **TEST**
Perform function test and final check.

16.2 Hinged foot on wheel (floor lock)

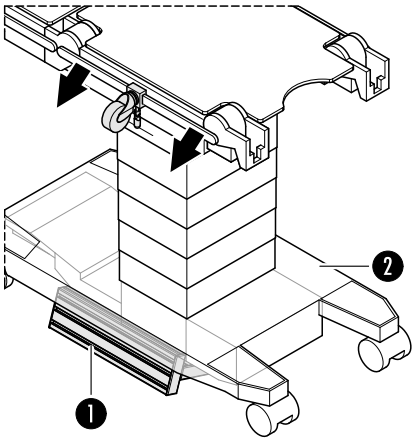
Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the side rail of the seat section.
3.

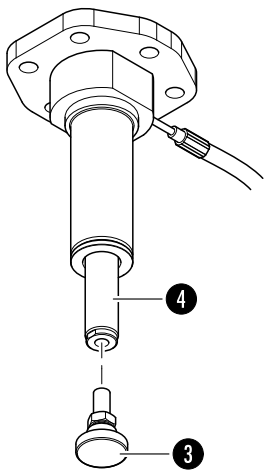
> **CAUTION**
> **Risk of material damage!**
>
> The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).



4. Slide the multifunction tool [1] mounted as a T under the table base [2].
5. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points up) and set it on the star wheel.

   Do not place the operating table on its side with the column keypad pointing down. In this case, air would get into the hydraulic hoses when the hydraulics were activated.
6. Lock (brake) the operating table using the CAN test center.
7. Remove the hinged foot [3] from the locking cylinder [4]. A flat, open-ended wrench is needed to hold the floor lock.



Assembly

1. Mount the hinged foot on the locking cylinder.
2. Unlock the operating table using the CAN test center. Make sure that the floor lock is retracted (necessary for righting the table)
3. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person

is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.

4. Remove the multifunction tool.
5. Remove the toothed wheel.
6. Lock operating table (brake)
7. Put on the pad.

TEST

Perform function test and final check.

17 Electrical parts of the table base

CAUTION
Risk of personal injury due to conductive parts.

Use extreme caution and care when repairing electrical components. Secure the work area from access by others.

CAUTION
Risk of injury!

Always store tools and removed components securely and make sure no one can trip or fall over them.

CAUTION
Risk of material damage!

Do not let screws, nuts or other parts fall into the operating table! Immediately remove any parts that fell in. Parts that have not been removed can damage other components or cables when the OR table is adjusted. The operating table may not be released to the customer if parts fell in and were not removed.

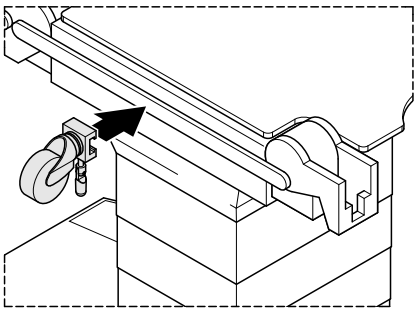
For all screws ≥ M4 without split lock washers, use a medium-strength screw locking agent.

When working on the hydraulics unit, make sure no air seeps into the system. For this reason, do not activate the hydraulics on the operating table if the operating table has been placed on its side with the column keypad pointing down.

17.1 Drive unit

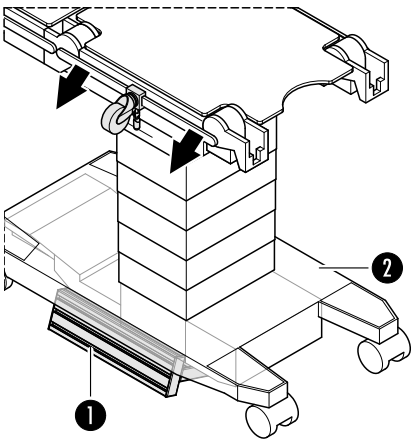
Important: assembly requires serial number. Note chapter 27 on page 276.

Disassembly

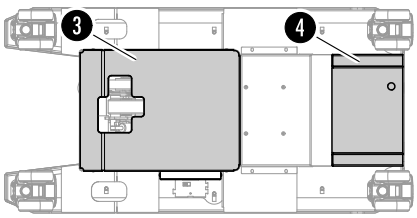


1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the right side rail [9] of the seat section.
3. **CAUTION**
   Risk of material damage!
   The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).
   Attention: The quick connectors on the assembly can be loosened and connected only if the floor locks of the wheels are retracted, thereby relieving the hydraulic system.
4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).

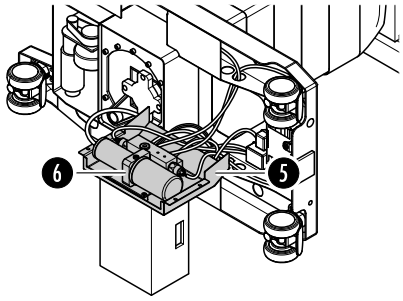


5. Slide the multifunction tool [1] mounted as a T under the table base [2].
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points up) and set it on the star wheel.
   Do not place the operating table on its side with the column keypad pointing down. In this case, air would get into the hydraulic hoses when the hydraulics were activated.



7. Remove the subfloor cover [3] from the table base (4 screws).
8. Remove the right cover [4] from the table base (4 screws).

[9] Side without the column keypad



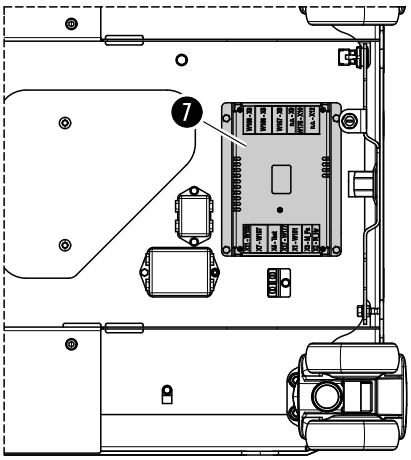
9. Important: the assembly [6] is attached to the cover [5]. Provide a suitable aid (for example a crate or carton) near the table base so the assembly can be placed on it. The cables are not long enough for the assembly to be placed on the floor.

   Remove the center cover [5] under the table base (4 screws with washers) and store it carefully.

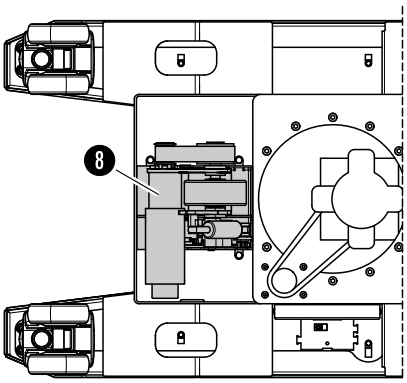
10. Using circlip pliers, release the drive unit quick connector on the assembly [6] (see chapter 23 on page 260 and hydraulics diagram on page 299).

11. Be sure to note the cable routing.

    Unfasten the supply lines (drive motor cable [10] and hydraulic hose) from the drive unit up to the assembly.



12. Disconnect the plug of the drive motor (M_FA) from the control module [7] (see circuit diagram on page 295) [10].



13. Be sure to note the cable routing.

    Remove the drive unit [8] (4 nuts with washers) and carefully pull the supply lines out of the table base.

Assembly

1. Carefully insert the drive unit into the table base and mount it (4 screws with washers).

2. Restore the original cable routing.

   Route the supply lines (motor drive cable [10] and hydraulic hose) in the table base and reattach.

3. Tighten the clamp on the quick connector and connect the hydraulic hose to the assembly (quick connectors) (see

[10] For an operating table with an electric drive unit only.

chapter 23 on page 260 and hydraulic diagram on page 299).

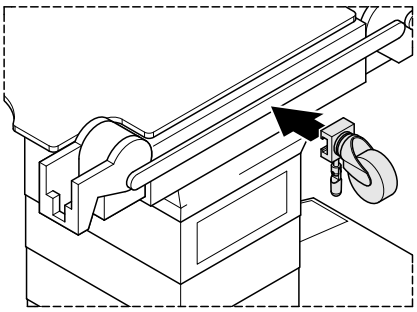
4. Insert the motor cable plug into the socket on control module (see circuit diagram on page 295). [10)]
5. Restore the original cable routing. Check all connections on the assembly to be sure they are secure.
   Carefully insert the cover with the assembly into the table base and mount it (4 screws with washers).
6. Mount the cover above the control module (4 screws).
7. Mount the subfloor cover on the table base (4 screws).
8. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
9. Remove the multifunction tool.
10. Remove the toothed wheel.
11. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
12. Lock operating table (brake)
13. Put on the pad.
14. Update the software (see the software description from the CAN test center).

 **TEST**
Perform recheck according to IEC 60601-1; perform function test and final check.

17.2 Control module

Important: assembly requires serial number. Note chapter 27 on page 276.

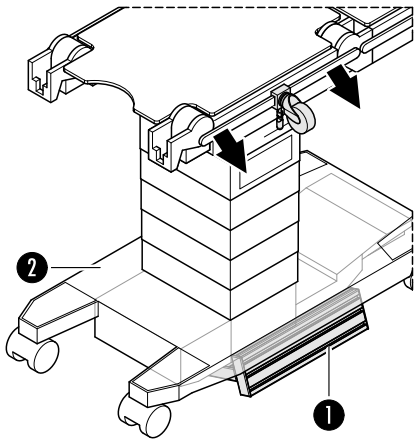
Disassembly



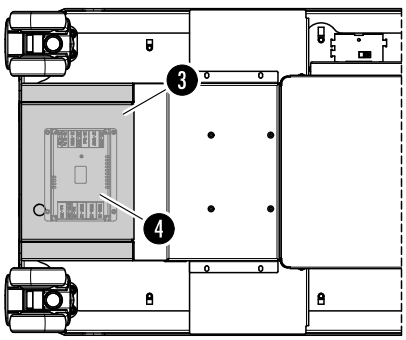
1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the left side rail [11] of the seat section.
3.

> **CAUTION**
> **Risk of material damage!**
>
> The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).
4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
5. Slide the multifunction tool [1] mounted as a T under the table base [2].



6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points down) and set it on the star wheel.
   After placing the table on its side, do not activate the hydraulics system to prevent air from seeping into the hydraulic hoses.
7. Remove the left cover [3] under the table base (4 screws).
8. Be sure to note the cable routing.
   Remove all plugs from the control module [4].
9. Remove the control module [4] from the table base (4 nuts).



Assembly

1. Mount the control module in the table base (4 nuts).
2. Insert all plugs into the sockets on the control module (see circuit diagram on page 295).

[11] Side with the column keypad

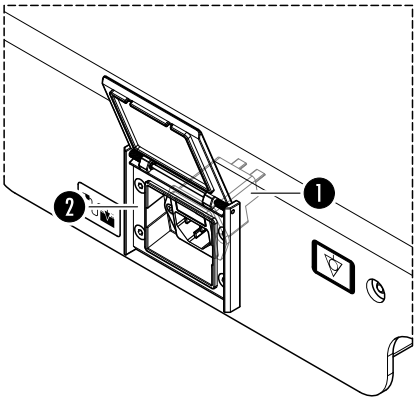
3. Mount the cover above the control module (4 screws).
4. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
5. Remove the multifunction tool.
6. Remove the toothed wheel.
7. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
8. Lock operating table (brake)
9. Put on the pad.

TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

17.3 Line power socket

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Lift the cover of the line power socket on the table base and remove the screws (2x) on the line power socket [1].
4. Carefully pull the line power socket [1] out of the filter housing [2] until the connections are accessible.
5. Note connection assignments!
   Pull out all three cables and remove the line power socket.

Assembly

1. Check the fuses in the line power socket and replace them if necessary.
2. **CAUTION**
   Risk of material damage due to incorrect connector pin assignment!

   Line power connections must not be interchanged!
   Equipotential bonding must be connected in the middle.
   Restore all original connector pin assignments (see circuit diagram on page 295).

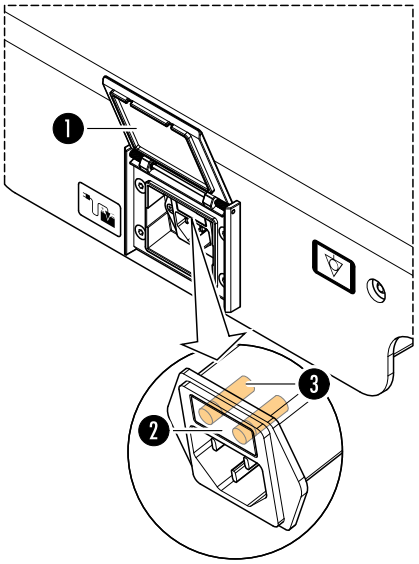
   Attach the line power socket: the two connectors on the W150 cable to L and N and the ground wire_25 in the middle to ground (PE).
3. Note the original mounting position of the line power socket!
   Lift the cover off the line power socket on the table base and carefully slide the power socket with the fuse chamber up into the filter housing and mount it (2 screws).
4. Close the cover on the line power socket.
5. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
6. Put on the pad.

TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

17.4 Power input fuses

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Lift the cover [1] of the line power socket on the table base. Pull out the fuse chamber [2], open it, and remove the fuse [3].
4. Check each fuse and replace if necessary.

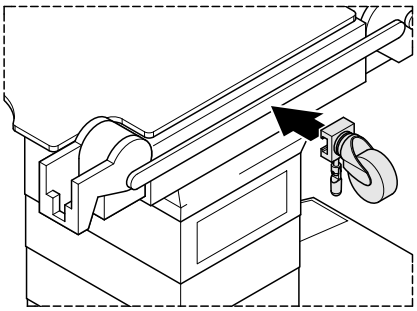
Assembly

1. Lift the cover of the line power socket on the table base. Pull out the fuse chamber, open it, and insert the checked fuses (see fuse overview on page 279).
2. Close and reinsert the fuse chamber.
3. Close the cover on the line power socket.
4. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
5. Put on the pad.

TEST
Perform function test and final check.

17.5 Buttons

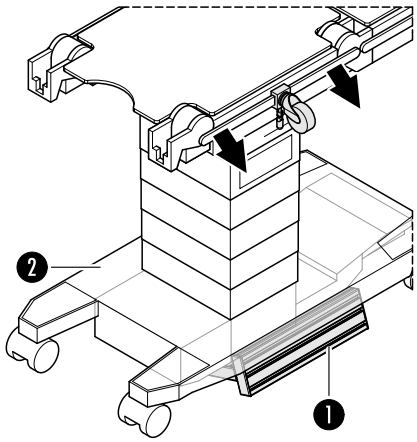
Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the left side rail [12] of the seat section.
3.

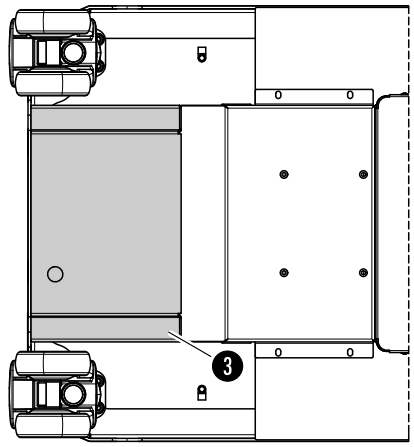
> **CAUTION**
> **Risk of material damage!**
>
> The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).
4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).



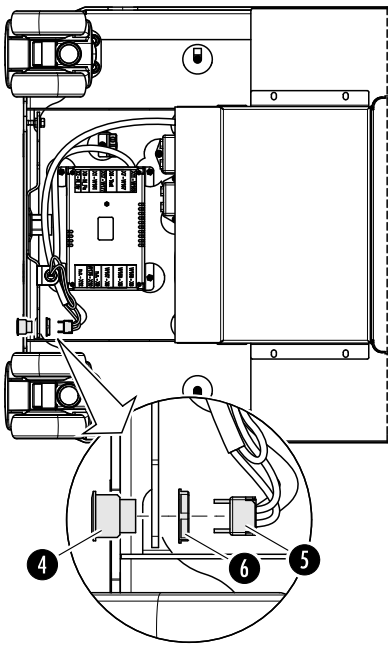
5. Slide the multifunction tool [1] mounted as a T under the table base [2].
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points down) and set it on the star wheel.

   After placing the table on its side, do not activate the hydraulics system to prevent air from seeping into the hydraulic hoses.



7. Remove the left cover [3] under the table base (4 screws).

[12] Side with the column keypad



8. Disconnect all plugs [5] from the button [4].
9. Disconnect the plug contact from the button.
10. Remove the label over the button externally from the table base.
11. Remove the counter nut [6] from the button [4] and take the button out of the holder.

Assembly

1. Insert the button in the holder on the table base and secure with the counter nut.
2. Insert the plug contact in the button.
3. Plug cables W153, W154 and W155 into the button (see circuit diagram on page 295).
4. Mount the cover above the control module (4 screws).
5. Affix the *EMERGENCY RELEASE* label externally on the table base over the button.
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
7. Remove the multifunction tool.
8. Remove the toothed wheel.
9. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
10. Lock operating table (brake)
11. Put on the pad.

TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

18 Hydraulic parts of the table base

CAUTION
Risk of physical injury!

Do not loosen any hydraulic connections while the system is under pressurized. Unlock the operating table and depressurize the hydraulic system before working on the hydraulics. Use extreme caution and care when repairing hydraulic parts. Secure the work area from access by others.

CAUTION
Risk of injury!

Always store tools and removed components securely and make sure no one can trip or fall over them.

CAUTION
Risk of material damage!

Do not let screws, nuts or other parts fall into the operating table! Immediately remove any parts that fell in. Parts that have not been removed can damage other components or cables when the OR table is adjusted. The operating table may not be released to the customer if parts fell in and were not removed.

For all screws ≥ M4 without split lock washers, use a medium-strength screw locking agent.

Maintain cleanliness when working on the hydraulics. Dirt or metal particles can damage the hydraulics system.

Finally, check the cable routing and fastening and make sure that the cable cannot independently slide or get between moving parts!

18.1 Information on the hydraulics system

In normal operation, the hydraulics assembly is maintenance-free and designed to be long lasting. Oil or filter changes are unnecessary. Dark oil is possible in the system and does not require changing. Additionally, oil does not need refilling in normal operation. When replacing the pump assembly, oil may be lost in exceptional cases making refilling necessary.

Do not loosen any hydraulic connections while the system is under pressurized. Unlock the operating table and depressurize the hydraulic system before working on the hydraulics. In an emergency, follow chapter 23 on page 260. Maintain cleanliness when working on the hydraulics. The assembly valves may become leaky if dirt or metal particles are deposited in the valves. Always make sure the quick-connect couplings are clean and that, when

opened, no dirt gets into the valves. Keep openings on the hydraulic system open only as long as it absolutely necessary, and then close them tight. Use only lint-free materials to clean the hydraulic system.

The maximum pressure in the system is 160 bar. The head and foot-end floor locks are extended with different pressure. The foot-end floor locks compensate for unevenness in the floor. Note the head and foot arrangement of the locking cylinder in the table base. The head-end floor locks (lift 25) have two wrench flats, and the foot-end floor lock (lift 35) has one wrench flat.

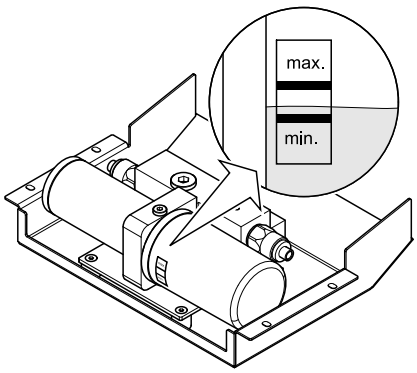
The hydraulic hoses have to be routed in the operating table base with a bending radius of greater than 35 mm. Any less of a bending radius and the hose could kink and damage the hydraulic system.

When working on the hydraulics unit, make sure no air seeps into the system. Therefore, do not activate the hydraulics on the operating table if the operating table has been placed on its side with the column keypad pointing down.

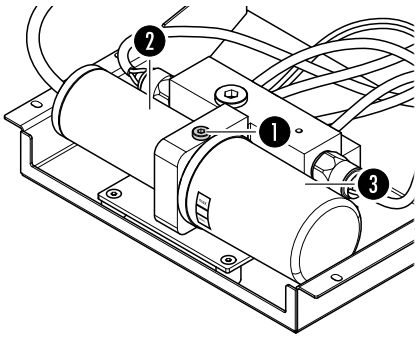
18.2 Refilling oil in the assembly

The assembly may only be filled with "Castrol Hyspin DSP 32" (#1864008) hydraulic oil.

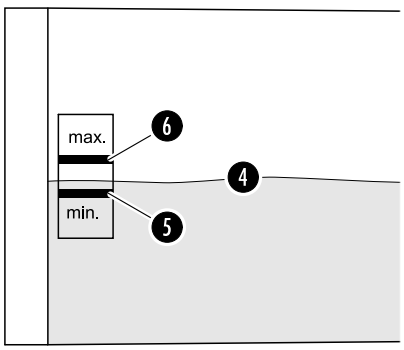
Maintain cleanliness when working on the hydraulics. Airborne foreign particles (such as dust) may not fall into the system as they could cause damage within the system. Also make sure that no chips (such as rust particles) from the oil refill container fall into the system.



1. Move the assembly to the mounting position and check the fill level on the oil container. The oil has to be refilled if it is below the minimum mark.



2. Unscrew the plug screw [1] on the pump assembly between the motor [2] and oil container [3].

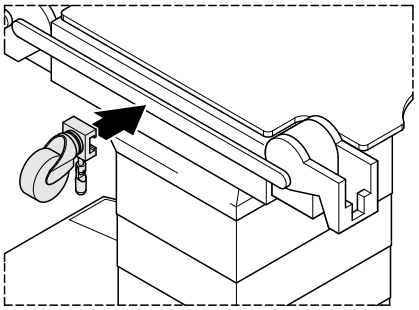


3. Refill the oil until the oil level [4] is between the minimum [5] and maximum [6] marks.
4. Install the plug screw [1] with 10 Nm.

18.3 Bleeding the hydraulic system

The hydraulic system has to be bled if air has gotten into the hoses.

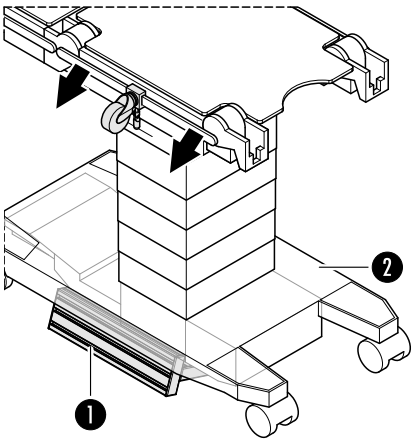
1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the right side rail [13] of the seat section.



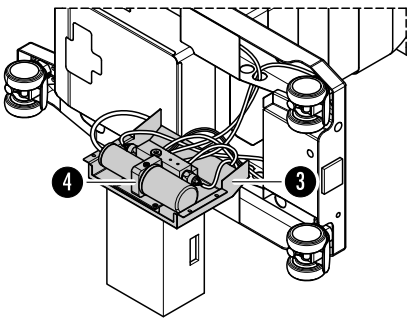
3. **CAUTION**
   Risk of material damage!

   The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).

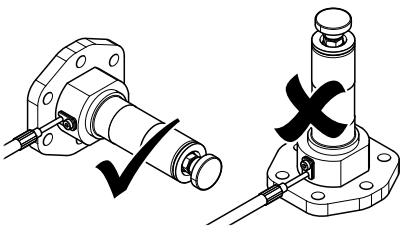


4. Slide the multifunction tool [1] mounted as a T under the table base [2].
5. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points up) and set it on the star wheel.



6. Important: the assembly [4] is attached to the cover [3]. Provide a suitable aid (for example a crate or carton) near the table base so the assembly can be placed on it. The cables are not long enough for the assembly to be placed on the floor.

   Remove the center cover [3] under the table base (4 screws with washers) and store it carefully. Make sure that the oil container is horizontal, in mounting position.



7. The upper locking cylinders and their hoses have to be placed on the floor so that they are below the assembly and the air can rise from the hoses into the container. Remove the upper locking cylinder. Do not place the locking cylinder on its head.

   The two lower locking cylinders are bled while still installed.
8. Bleeding (internal power supply needed): Lock and release the operating table at least 10 times using the CAN test center. Release the first 3 or 4 times with the *EMERGENCY RELEASE*

[13] Side without the column keypad

button because there is still too little pressure in the system. The system is bled when the floor locks extend fully (25 mm / 35 mm). The air is pulled into the oil container and maximum pressure builds during locking.

Make sure the floor locks retract after the procedure (necessary to right the table).

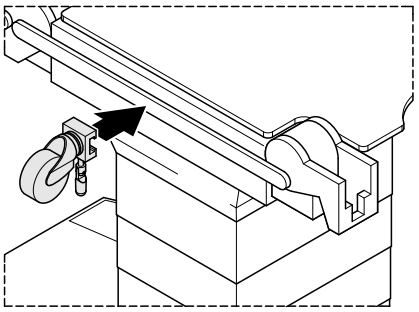
9. Install the two upper locking cylinders.
10. Restore the original cable routing. Check all connections on the jack unit to be sure they are secure.

    Carefully insert the cover with the assembly into the table base and mount it (4 screws with washers).
11. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
12. Replace the label over the *EMERGENCY RELEASE* button.
13. Remove the multifunction tool.
14. Remove the toothed wheel.
15. Lock operating table (brake)
16. Put on the pad.

 **TEST**
Perform function test and final check.

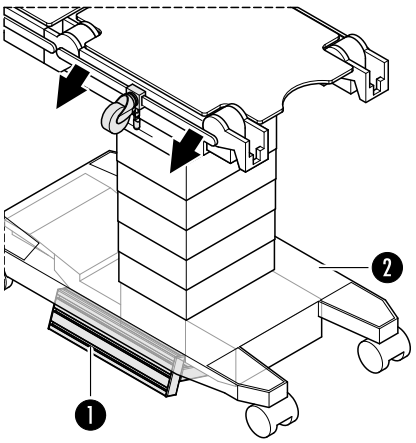
18.4 Coil on the pump assembly

Disassembly

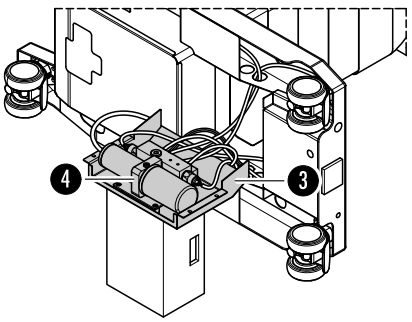


1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the right side rail [14] of the seat section.
3. **CAUTION**
   Risk of material damage!
   The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).
   Attention: The quick connectors on the assembly can be loosened and connected only if the floor locks of the wheels are retracted, thereby relieving the hydraulic system.
4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).

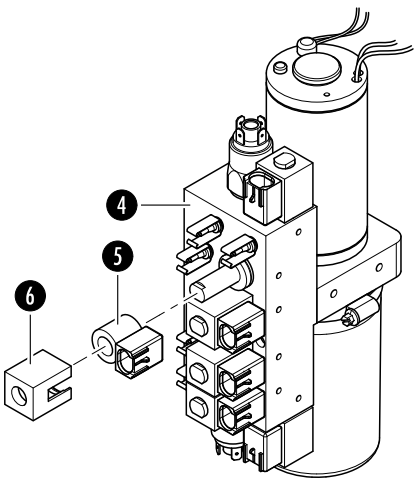


5. Slide the multifunction tool [1] mounted as a T under the table base [2].
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points up) and set it on the star wheel.
   Do not place the operating table on its side with the column keypad pointing down. In this case, air would get into the hydraulic hoses when the hydraulics were activated.



7. Important: the assembly [4] is attached to the cover [3]. Provide a suitable aid (for example a crate or carton) near the table base so the assembly can be placed on it. The cables are not long enough for the assembly to be placed on the floor.
   Remove the center cover [3] under the table base (4 screws with washers) and store it carefully.
8. Disconnect the plug from the coil.

[14] Side without the column keypad



9. Using a flat screwdriver, alternating at each corner, carefully lift the coil [5] (in the magnet housing [6]), from the assembly [4]. If necessary, hit a plastic hammer against the screwdriver.
10. Note the mounting position of the coil in the magnet housing. Remove the coil [5] from the magnet housing [6].
11. Measure the resistance at the coil with a multimeter. The value must be 66 $^{\pm 6}$ ohm. In case of error replace the coil.

Assembly

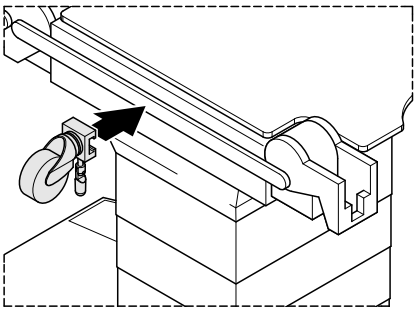
1. Insert the coil into its original position in the magnet housing.
2. There has to be a gap of between 0.5 mm and 1 mm between the magnet housing and the assembly (use a thickness gauge). Carefully hammer the coil (in the magnet housing) onto the assembly using a plastic hammer.
3. Connect the plug to the coil.
4. Position the assembly in its mounting position in front of the table base.
5. Restore the original cable routing. Check all connections on the assembly to be sure they are secure.
   Carefully insert the cover with the assembly into the table base and mount it (4 screws with washers).
6. Establish the internal power supply and perform a function test. Lock and release the operating table using the CAN test center. Make sure the floor locks retract after the procedure (necessary to right the table). Then disconnect the internal power supply.
7. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
8. Remove the multifunction tool.
9. Remove the toothed wheel.
10. Check the label over the *EMERGENCY RELEASE* button and replace if damaged (for example due to triggering the button).
11. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
12. Lock operating table (brake)

13. Put on the pad.

 TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

18.5 Locking cylinder with hose

Disassembly

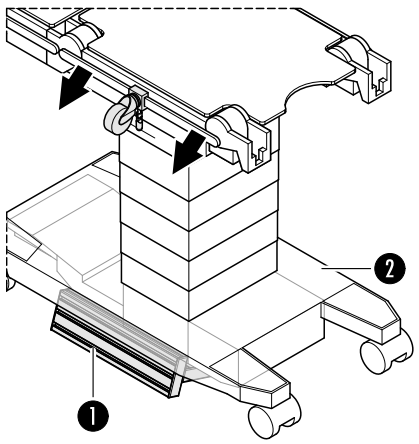


1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the right side rail [15] of the seat section.
3. Lift the cover plate on the table base above the wheel.
4. **CAUTION**
   Risk of material damage!

   The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

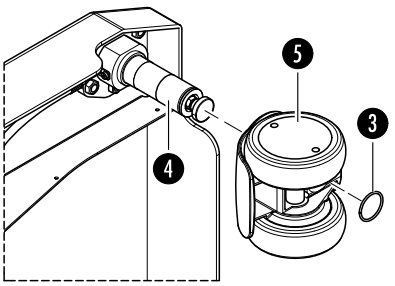
   Release the brake on the operating table (unlock the operating table).

   Attention: The quick connectors on the assembly can be loosened and connected only if the floor locks of the wheels are retracted, thereby relieving the hydraulic system. If necessary, press the *EMERGENCY RELEASE* button.
5. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).



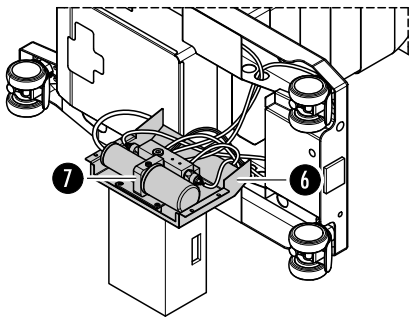
6. Slide the multifunction tool [1] mounted as a T under the table base [2].
7. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points up) and set it on the star wheel.

   Do not place the operating table on its side with the column keypad pointing down. In this case, air would get into the hydraulic hoses when the hydraulics were activated.



8. Remove the snap ring [3] from the floor lock [4] and pull off the wheel [5].

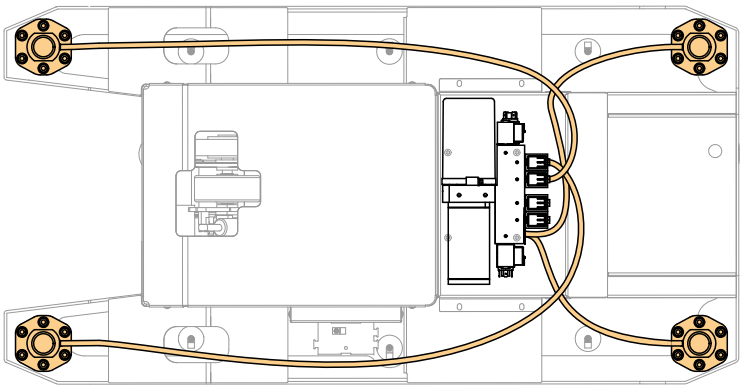
[15] Side without the column keypad



9. Important: the assembly [7] is attached to the cover [6]. Provide a suitable aid (for example a crate or carton) near the table base so the assembly can be placed on it. The cables are not long enough for the assembly to be placed on the floor.

   Remove the center cover [6] under the table base (4 screws with washers) and store it carefully.

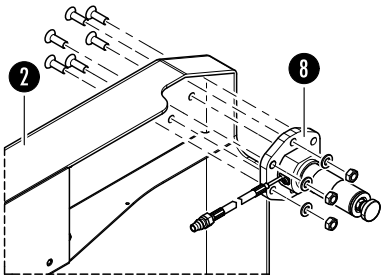
10. Using circlip pliers, release the quick connectors on the assembly (see chapter 23 on page 260 and hydraulics diagram on page 299).



11. Be sure to note the cable routing.

    Unfasten the hydraulic hose from the wheel up to the assembly and then carefully pull the hose out of the table base.

12. Attention: Firmly grasp the locking cylinder while unscrewing the screws. Remove the locking cylinder [8] from the table base [2] (6 screws with washers and nuts).



Assembly

The locking cylinder with hose is full when delivered and therefore does not need to be bled.

1. Note the head and foot arrangement of the locking cylinder in the table base. The head-end floor locks (lift 25) have two wrench flats, and the foot-end floor lock (lift 35) has one wrench flat.

   Insert the locking cylinder into the table base and mount (6 screws with washers and nuts).

2. Restore the original cable routing.

   Route the hydraulic hose of the locking cylinder in the table base and reattach. Make sure the hydraulic hose is routed with a bending radius of more than 35 mm. Finally, check the cable routing and fastening and make sure that the cable cannot independently slide or get between moving parts!

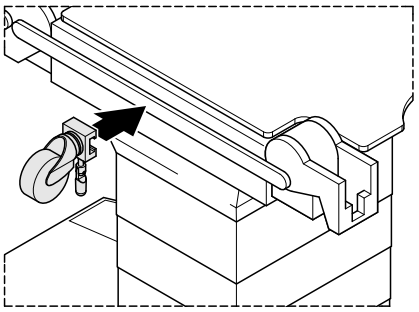
3. Position the assembly in its mounting position in front of the table base.
4. Tighten the clamp on the quick connector and connect the hydraulic hose to the assembly (quick connectors) (see chapter 23 on page 260 and hydraulic diagram on page 299).
5. Restore the original cable routing. Check all connections on the assembly to be sure they are secure.

   Carefully insert the cover with the assembly into the table base and mount it (4 screws with washers).
6. Establish the internal power supply and perform a function test. Lock and release the operating table repeatedly using the CAN test center. Make sure the floor locks retract after the procedure (necessary to right the table). Then disconnect the internal power supply.
7. Slide the wheel onto the floor lock up to the stop.
8. Secure the spring ring in the groove of the floor lock.
9. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
10. Remove the multifunction tool.
11. Remove the toothed wheel.
12. Remove any adhesive residue from the table base above the wheel and degrease.
13. Affix a new cover plate above the wheel on the table base.
14. Check the label over the *EMERGENCY RELEASE* button and replace if damaged (for example due to triggering the button).
15. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
16. Lock operating table (brake)
17. Put on the pad.

 **TEST**
Perform recheck according to IEC 60601-1; perform function test and final check.

18.6 Hose #1 through #4 with coupling (on the locking cylinder)

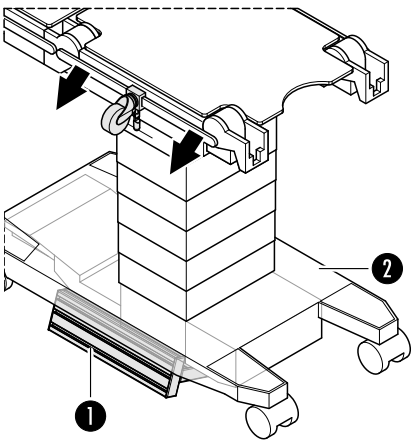
Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the right side rail [16] of the seat section.
3. Lift the cover plate on the table base above the wheel.
4. **CAUTION**
   Risk of material damage!
   The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

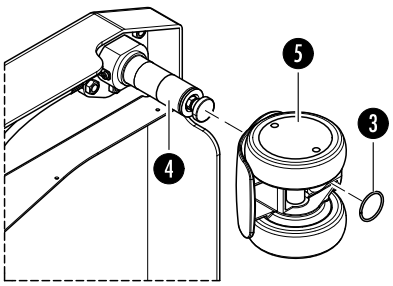
   Release the brake on the operating table (unlock the operating table).

   Attention: The quick connectors on the assembly can be loosened and connected only if the floor locks of the wheels are retracted, thereby relieving the hydraulic system. If necessary, press the *EMERGENCY RELEASE* button.
5. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).



6. Slide the multifunction tool [1] mounted as a T under the table base [2].
7. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points up) and set it on the star wheel.

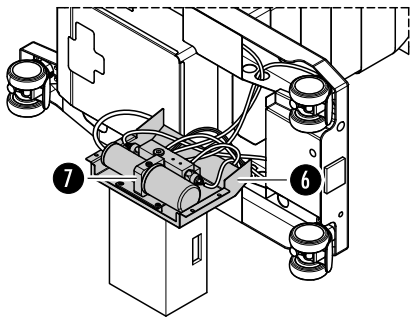
   Do not place the operating table on its side with the column keypad pointing down. In this case, air would get into the hydraulic hoses when the hydraulics were activated.



8. Remove the snap ring [3] from the floor lock [4] and pull off the wheel [5].

[16] Side without the column keypad

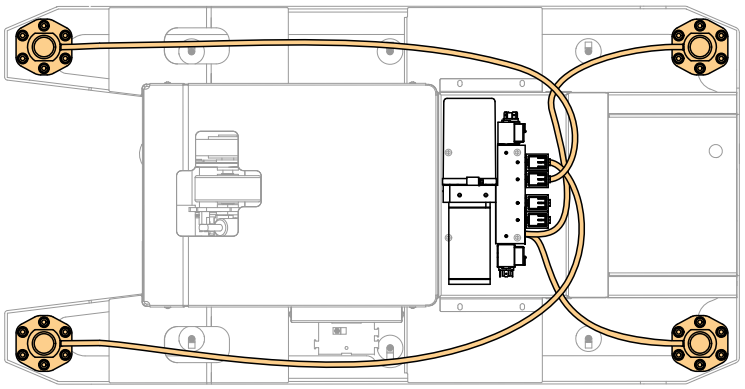
Hose #1 through #4 with coupling (on the locking cylinder)



9. Important: the assembly [7] is attached to the cover [6]. Provide a suitable aid (for example a crate or carton) near the table base so the assembly can be placed on it. The cables are not long enough for the assembly to be placed on the floor.

   Remove the center cover [6] under the table base (4 screws with washers) and store it carefully.

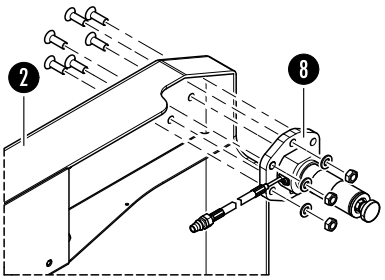
10. Using circlip pliers, release the quick connector on the assembly (see chapter 23 on page 260 and hydraulics diagram on page 299).

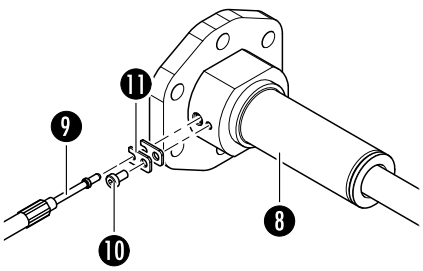


11. Be sure to note the cable routing.

    Unfasten the hydraulic hose from the wheel up to the assembly and then carefully pull the hose out of the table base.

12. Attention: Firmly grasp the locking cylinder while unscrewing the screws. Remove the locking cylinder [8] from the table base [2] (6 screws with washers and nuts).





13. Cover the hose connection with a lint-free cloth since oil drops can spurt out.

    Unscrew the screw [10] on the lifting cylinder [8] hose connection and remove both clamping plates [11].

14. Pull the hose [9] from the locking cylinder.

    Maintain cleanliness when working on the hydraulics. Airborne foreign particles (such as dust) may not fall into the opening on the locking cylinder, as they could cause damage within the system. If necessary, cover the locking cylinder opening with a lint-free cloth.

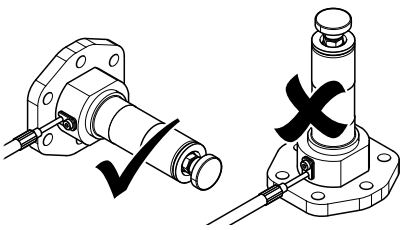
Assembly

The hose is delivered without oil.

1. Check the installation depth of the brass ring (seal) in the

locking cylinder using a sliding caliper. The distance of the ring to the locking cylinder housing has to be 2.1 $^{+0,2}$ mm. Replace the locking cylinder if the value is different.

1. Make sure that airborne foreign particles (such as dust) do not fall into the opening on the locking cylinder, as they could cause damage within the system.
   Carefully insert the hose to the end into the opening on the locking cylinder.
2. Important: always use two clamping plates per hose connection. Mount the clamping plate on the locking cylinder (1 screw). Tighten the screw with 2.9 Nm.
3. If oil leaked during disassembly, clean the locking cylinder with a lint-free cloth.
4. The two lower locking cylinders can be mounted because they can be bled while installed:
   a) If the two locking cylinders were removed, during installation note the head and foot arrangement in the table base. The head-end floor locks (lift 25) have two wrench flats, and the foot-end floor lock (lift 35) has one wrench flat.
      Insert the locking cylinder into the table base and mount (6 screws with washers and nuts).
   b) Restore the original cable routing.
      Route the hydraulic hose of the locking cylinder in the table base and reattach. Make sure the hydraulic hose is routed with a bending radius of more than 35 mm. Finally, check the cable routing and fastening and make sure that the cable cannot independently slide or get between moving parts!
5. The upper locking cylinders and their hoses have to be placed on the floor so that they are below the assembly and the air can rise from the hoses into the container. Do not place the locking cylinder on its head.



6. Tighten the clamp on the quick connector and connect the hydraulic hose to the assembly (quick connectors) (see chapter 23 on page 260 and hydraulic diagram on page 299).
7. Bleed the hose: Establish the internal power supply and lock and release the operating table 10 times using the CAN test center. Release the first 3 or 4 times with the *EMERGENCY RELEASE* button because there is still too little pressure in the system.
   Make sure the floor locks retract after the procedure (necessary to right the table). Then disconnect the internal power supply.

8. Mount the two upper locking cylinders:
   a) If the two locking cylinders were removed, during installation note the head and foot arrangement in the table base. The head-end floor locks (lift 25) have two wrench flats, and the foot-end floor lock (lift 35) has one wrench flat.

      Insert the locking cylinder into the table base and mount (6 screws with washers and nuts).
   b) Loosen the quick coupling on the assembly with circlip pliers so that the hose can be routed in the table base (see chapter 23 on page 260).
   c) Restore the original cable routing.

      Route the hydraulic hose of the locking cylinder in the table base and reattach. Make sure the hydraulic hose is routed with a bending radius of more than 35 mm. Finally, check the cable routing and fastening and make sure that the cable cannot independently slide or get between moving parts!
   d) Tighten the clamp on the quick connector and connect the hydraulic hose to the assembly (quick connectors) (see chapter 23 on page 260 and hydraulic diagram on page 299).
9. Check the oil level on the assembly and refill if necessary (see chapter 18.3 on page 161).
10. Restore the original cable routing. Check all connections on the assembly to be sure they are secure.

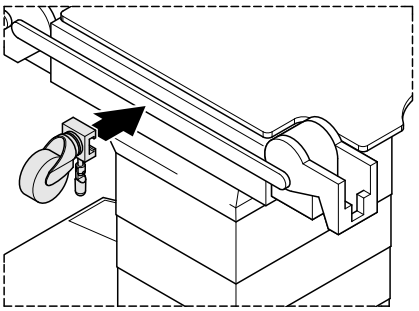
    Carefully insert the cover with the assembly into the table base and mount it (4 screws with washers).
11. Slide the wheel onto the floor lock up to the stop.
12. Secure the spring ring in the groove of the floor lock.
13. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
14. Remove the multifunction tool.
15. Remove the toothed wheel.
16. Remove any adhesive residue from the table base above the wheel and degrease.
17. Affix a new cover plate above the wheel on the table base.
18. Replace the label over the *EMERGENCY RELEASE* button.
19. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).

20. Lock operating table (brake)
21. Put on the pad.

 **TEST**
Perform recheck according to IEC 60601-1; perform function test and final check.

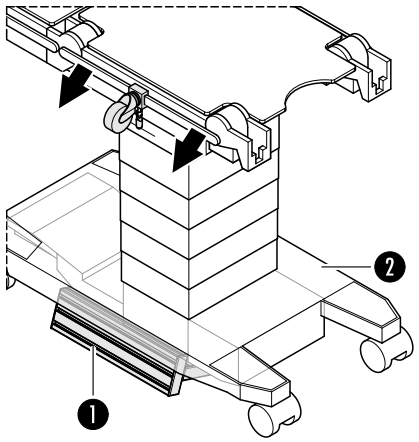
18.7 Assembly with valve block

Disassembly

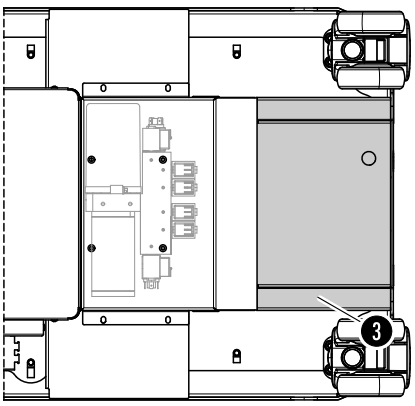


1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the right side rail [17] of the seat section.
3. **CAUTION**
   Risk of material damage!
   The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).
   Attention: The quick connectors on the assembly can be loosened and connected only if the floor locks of the wheels are retracted, thereby relieving the hydraulic system. If necessary, press the *EMERGENCY RELEASE* button.
4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).

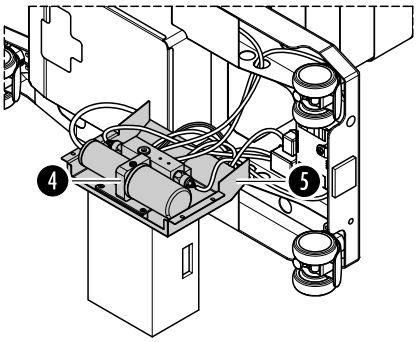


5. Slide the multifunction tool [1] mounted as a T under the table base [2].
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points up) and set it on the star wheel.
   Do not place the operating table on its side with the column keypad pointing down. In this case, air would get into the hydraulic hoses when the hydraulics were activated.



7. Remove the right cover [3] under the table base (4 screws).
8. Be sure to note the cable routing.
   Disconnect the plug of the cable for the hydraulic pump motor (M-HY) from the control module (see circuit diagram on page 295) and expose the cable.

[17] Side without the column keypad



9. Important: the assembly [4] is attached to the cover [5]. Provide a suitable aid (for example a crate or carton) near the table base so the assembly can be placed on it. The cables are not long enough for the assembly to be placed on the floor.

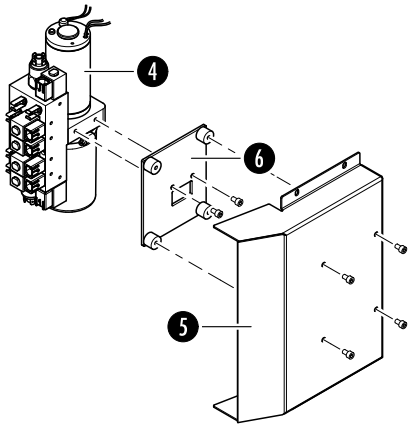
   Remove the center cover [5] under the table base (4 screws with washers) and store it carefully.

10. Using circlip pliers, release all quick connectors on the assembly (see chapter 23 on page 260 and hydraulics diagram on page 299).

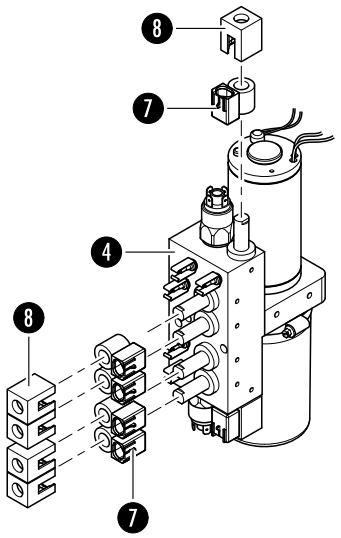
11. Remove all connections from the assembly.

12. Remove the cover [5] from the assembly [4] (4 screws).

13. Remove the spacer plate [6] from the assembly [4] (2 screws).



14. Using a flat screwdriver, alternating at each corner, carefully lift the coil [7] (in the magnet housing [8]), from the assembly [4]. If necessary, hit a plastic hammer against the screwdriver.



Assembly

Important: do not change the connections (plus/minus wires) on the motor. If the connections are wrong the motor will turn in the opposite direction and suck oil. This will destroy the hydraulic unit.

1. Measure the resistance at the coil with a multimeter. The value must be 66 $^{\pm 6}$ ohm. In case of error replace the coil.

2. Insert the coil into its original position in the magnet housing.

3. There has to be a gap of between 0.5 mm and 1 mm between the magnet housing and the assembly (use a thickness gauge).

Carefully hammer the coil (in the magnet housing) onto the assembly using a plastic hammer.

4. Mount the spacer plate on the assembly (2 screws).
5. Mount the assembly with the spacer plate on the cover (4 screws).
6. Position the jack unit in its installation position in front of the table base.
7. Insert the motor cable plug into the socket on control module (see circuit diagram on page 295).
8. Insert all plugs into the sockets on the assembly (see circuit diagram on page 295).
9. Tighten the clamps on the quick connectors and connect all hydraulic hoses on the assembly (quick connector) (see chapter 23 on page 260 and hydraulic diagram on page 299).
10. Restore the original cable routing. Check all connections on the jack unit to be sure they are secure.
    Carefully insert the cover with the assembly into the table base and mount it (4 screws with washers).
11. Mount the cover above the control module (4 screws).
12. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
13. Remove the multifunction tool.
14. Remove the toothed wheel.
15. Check the label over the *EMERGENCY RELEASE* button and replace if damaged (for example due to triggering the button).
16. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
17. Lock operating table (brake)
18. Put on the pad.

TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

19 Cabling overview

Mat. no.	Cable	Cable routing	Description
Table top			
1678893	Ground wire_24	Ground wire from the center box to the bar	Chapter 20.1, page 181
1707175	W174	Cable from the motor controller circuit board to the communications controller circuit board	Chapter 20.2, page 183
1665165	W165	Cable from the motor controller circuit board to the CAN distributor circuit board (center box)	Chapter 20.3, page 184
1665200	W166	Cable from the CAN distributor circuit board (center box) to the circuit board on the right bar	Chapter 20.4, page 185
1666115	W167	Cable from the CAN distributor circuit board (center box) to the circuit board on the left bar	Chapter 20.4, page 185
1666182	W168	Cable from the CAN distributor circuit board (center box) to the longitudinal travel motor	Chapter 20.5, page 187
1666183	W169	Cable from the circuit board in the bar to the leg or back section motor	Chapter 20.6, page 188
1666222	W170 *1	Cable from foot-end remote control socket to the motor controller circuit board	Chapter 20.7, page 189
1666223	W171 *1	Cable from head-end remote control socket to the motor controller circuit board	Chapter 20.7, page 189
1727155	Sensor	Cable from the coupling point to the leg and back section motor	Chapter 20.8, page 191
1460696	OR sensor	Cable from the OR sensor to the longitudinal travel motor	Chapter 20.9, page 195
1726741	W193 *1	Cable from the remote control socket to the Endolight interface circuit board	Chapter 20.10, page 196
1726732	W190 *1	Cable from the head-end Endolight interface circuit board to the motor controller circuit board	Chapter 20.11, page 198
1726737	W191 *1	Cable from the foot-end Endolight interface circuit board to the motor controller circuit board	Chapter 20.11, page 198

Mat. no.	Cable	Cable routing	Description
Column			
In component 1458744	W104 (spiral cable)	Cable from the coupling point (plug connection) to the power supply socket (connector board ST2)	Chapter 21.1, page 200
1663077	W159	Cable from the power supply socket (power supply circuit board) to the coupling point (plug connection) in the table base	Chapter 21.2, page 203
1663123	W160	Cable from the power supply unit (connector board ST2) to the coupling point (plug connection) in the table base	Chapter 21.3, page 205
1663128	W161	Cable from the power supply unit (connector board ST2) to the coupling point (plug connection) in the table base	Chapter 21.4, page 207
In component 1670009	W164 (spiral cable)	Cable from the motor controller circuit board via the plug connector on the Trendelenburg drive to the power supply socket (connector board ST2)	Chapter 21.5, page 209
1538234	W134	Cable from the power supply socket (power board PB1) from battery 1	Chapter 21.6, page 213
1678739	W172	Cable from the power supply socket (power board PB1) from battery 2	Chapter 21.7, page 215
1697786	W173 (spiral cable)	Cable from the motor controller circuit board to the coupling point (plug connection) on the suspension plate	Chapter 21.8, page 217
1466338	W107	Cable from the lift motor to the power supply socket (connector board ST2)	Chapter 21.9, page 219
1466339	W108	Cable from the tilt left motor to the column controller	Chapter 21.10, page 221
1466370	W109	Cable from the tilt right motor to the column controller	Chapter 21.11, page 223
1466371	W110	Cable from the Trendelenburg motor to the column controller	Chapter 21.12, page 225
1537955	Reset switch	Cable from the switch in the pot to the power supply unit (power board PB1)	Chapter 21.13, page 227
1497360	Trendelenburg power sensor	Cable from the sensor on the Trendelenburg drive (cardan joint) to motor controller circuit board	Chapter 15.15, page 137

Mat. no.	Cable	Cable routing	Description
1726987 (Option A)	Cable adapter *1	Cable from the ISM module to the motor controller	Chapter 21.15, page 230
1949603 (Option B)			
Table base			
1662803	W150	Cable from the coupling point (plug connection) in the table base to the line power socket	Chapter 22.1, page 233
1663044	W151	Cable from the coupling point (plug connection) in the table base, via the filter to the control module	Chapter 22.2, page 236
1663047	W152	Cable from the coupling point (plug connection) in the table base to the filter	Chapter 22.3, page 238
1663074	W153	Cable from the button to the control module	Chapter 22.4, page 240
1663075	W154	Cable from the fuse holder to the button	Chapter 22.5, page 242
1663076	W155	Cable from the coupling point (plug connection) in the table base to the fuse holder and the button	Chapter 22.6, page 244
1725425	W177	Cable from the filter to the control module	Chapter 22.7, page 247
1700850	W156	Cable from the assembly to the control module	Chapter 22.8, page 249
1700852	W158		
1700851	W157	Cable from the assembly to the control module	Chapter 22.9, page 251
1642436	W175	Cable from the sensor on the 5th wheel to the control module	Chapter 22.10, page 253
1735554	W162	Cable from the small filter (1 A) to the large filter (12 A)	Chapter 22.11, page 256
1717944	Ground wire _25	Ground wire from the line power socket to the column base	Chapter 22.12, page 258

*1 not available on all operating table versions.

20 Table top cables

CAUTION
Risk of personal injury due to conductive parts.

Use extreme caution and care when repairing electrical components. Secure the work area from access by others.

CAUTION
Risk of injury!

Always store tools and removed components securely and make sure no one can trip or fall over them.

CAUTION
Risk of material damage!

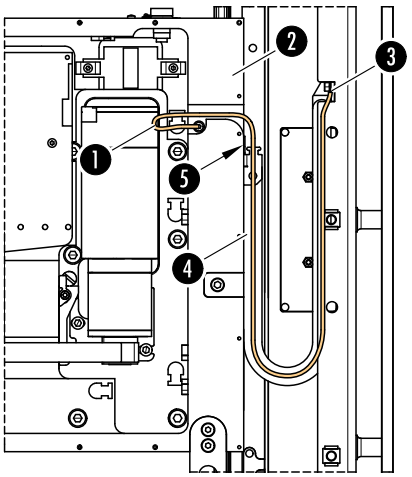
Do not let screws, nuts or other parts fall into the operating table! Immediately remove any parts that fell in. Parts that have not been removed can damage other components or cables when the OR table is adjusted. The operating table may not be released to the customer if parts fell in and were not removed.

For all screws ≥ M4 without split lock washers, use a medium-strength screw locking agent.

Finally, check the cable routing and fastening and make sure that the cable cannot independently slide or get between moving parts!

20.1 Ground wire_24

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the cover from the center box (see chapter 12.3 on page 41).
5. Be sure to note the cable routing.
   Remove ground wire_24 [1] from the center box [2] and the inside of the bar [3] (each with 1 screw with 2 washers).
6. Be sure to note the cable routing.
   Unfasten ground wire_24 [1] from the center box [2] up to the inside of the bar [3].
7. Remove the energy chain [4] (chain connection [5]) from the center box [2] (2 screws).
8. Attach a wire pull to the end of ground wire_24.
9. Lay the energy chain straight and carefully pull ground wire_24 out of the energy chain.
10. Remove ground wire_24 from the wire pull.

Assembly

1. Attach a wire pull to one end of ground wire_24. Use the wire pull on the mounted end of the energy chain.
2. Straighten the energy chain and carefully pull the wire pull with the ground wire through the energy chain without twisting.
3. Disconnect ground wire_24 from the wire pull and restore the energy chain to its original position.
4. Restore the original cable routing.
   Attach ground wire_24 to the center box and the inside of the bar (each with 1 screw with 2 washers).
5. Pull ground wire_24 in the energy chain evenly taut.
6. Attach the energy chain (chain connection) to the center box (2 screws).
7. Restore the original cable routing.
   Refasten ground wire_24 from the center box up to the inside of the bar.
8. Attach the cover to the center box (see chapter 12.3 on page 41).
9. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).

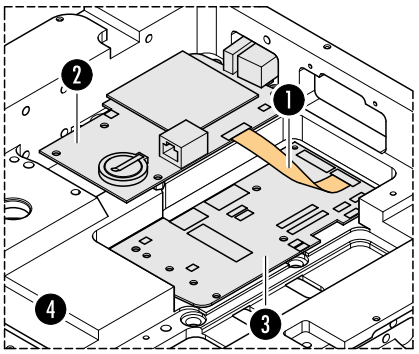
10. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
11. Put on the pad.

 TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

20.2 Cable W174

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the cover from the center box (see chapter 12.3 on page 41).
5. Be sure to note the cable routing.
   Disconnect the plug on cable W174 [1] from the motor controller circuit board [3] and communications controller circuit board [2] in the center box [4].



Assembly

1. **CAUTION**
   Risk of material damage due to incorrect connector pin assignment!
   Do not interchange the plug connections! Follow the circuit diagram on page 295.

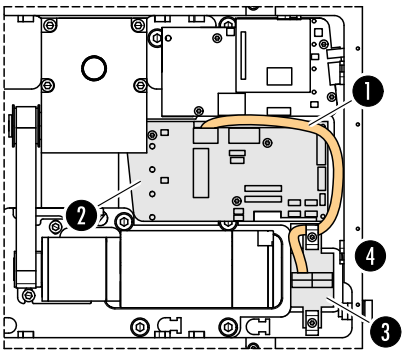
   Restore the original cable routing.
   Insert the plug on cable W174 into the socket on the motor controller circuit board and the communications controller circuit board.
2. Attach the cover to the center box (see chapter 12.3 on page 41).
3. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
4. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
5. Put on the pad.

TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

20.3 Cable W165

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the cover from the center box (see chapter 12.3 on page 41).
5. Be sure to note the cable routing.
   Unfasten cable W165 [1] from the motor controller circuit board [2] up to the CAN distributor circuit board [3] (center box [4]).
6. Disconnect the leads of cable W165 [1] from the plug of the CAN distributor circuit board [3] (center box).
7. Unplug cable W165 [1] from of the motor controller circuit board [2] and remove the cable.

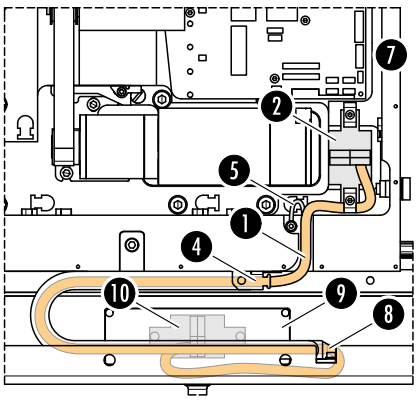
Assembly

1. Insert the plug of cable W165 into the socket on the motor controller circuit board (see circuit diagram on page 295) and route the cable in the center box.
2. Attach the leads of cable W165 to the plug on the CAN distributor circuit board (see circuit diagram on page 295).
3. Restore the original cable routing. Note the shield support.
   Refasten cable W165 from the motor controller circuit board up to the CAN distributor circuit board .
4. Attach the cover to the center box (see chapter 12.3 on page 41).
5. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
6. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
7. Put on the pad.

TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

20.4 Cable W166 and W167

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the cover from the center box (see chapter 12.3 on page 41).
5. Be sure to note the cable routing.
   Unfasten cable W166/W167 [1] from the CAN distributor circuit board [2] (center box) up to the end of the energy chain [4] on the inside of the bar.
6. Disconnect the leads of cable W166/W167 [1] from the plug of the CAN distributor circuit board [2] (center box).
7. Be sure to note the cable routing.
   Remove ground wire_24 [5] from the center box [7] (1 screw with 2 washers).
8. Remove the energy chain (chain connection [4]) from the center box (2 screws).
9. Lay the energy chain straight and carefully pull the cables out of the energy chain.
10. Remove the energy chain (chain connection [8]) from the inside of the bar (2 screws)) to gain access to the screws on the bar cap [9].
11. Be sure to note the cable routing.
    Open the cap [9] on the bar (4 screws) and gently tilt it so the underside of the circuit board is accessible. Jiggle the energy chain back and forth to access the screws on the bar cap.
12. Disconnect the leads of cable W166/W167 [1] from the plug of the CAN distributor circuit board [10] (bar cap) and remove the shielded connection (1 screw with 2 washers).

Assembly

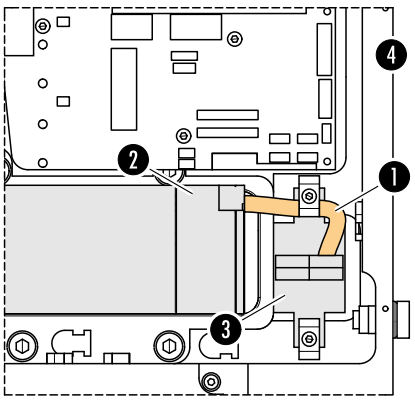
1. Draw a wire pull through the energy chain.
2. Attach the leads of cable W166/W167 to the plug on the CAN distributor circuit board (bar cap) (see circuit diagram on page 295) and attach the shielded connection (1 screw with 2 washers).
3. Restore the original cable routing.
   Pull cable W166/W167 through the recess on the bar cap and close the cap (4 screws). Make sure that no cables are pinched.

4. Attach the energy chain (chain connection) to the inside of the bar (2 screws).
5. Fasten the end of cable W166/W167 and the ground wire_24 to the wire pull. Use the wire pull on the mounted end of the energy chain.
6. Straighten the energy chain and carefully pull the wire pull with the cables through the energy chain without twisting.
7. Disconnect the cables from the wire pull and restore the energy chain to its original position.
8. Restore the original cable routing.
   Attach ground wire_24 to the center box and the inside of the bar (each with 1 screw with 2 washers).
9. Pull the cables in the energy chain equally taut. Pull the excess end of the cable out of the energy chain according to the cable routing.
10. Attach the energy chain (chain connection) to the center box (2 screws).
11. Lay cable W166/W167 in the center box.
12. Attach the leads of cable W166/W167 to the plug on the CAN distributor circuit board (center box) (see circuit diagram on page 295).
13. Restore the original cable routing. Note the shield support.
    Refasten cable W166/W167 from the CAN distributor circuit board (center box) up to the end of the energy chain on the inside of the bar.
14. Attach the cover to the center box (see chapter 12.3 on page 41).
15. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
16. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
17. Put on the pad.

TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

20.5 Cable W168

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the cover from the center box (see chapter 12.3 on page 41).
5. Disconnect plug and shielded connection of cable W168 [1] from longitudinal travel motor [2].
6. Be sure to note the cable routing.
   Unfasten cable W168 [1] from the CAN distributor circuit board [3] (center box) up to the longitudinal travel motor [2].
7. Disconnect the leads of cable W168 [1] from the plug of the CAN distributor circuit board [3] (center box [4]).

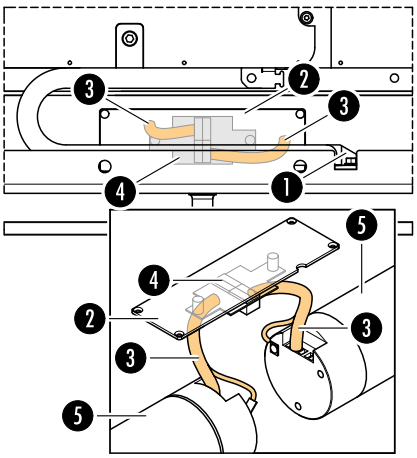
Assembly

1. Attach the leads of cable W168 to the plug on the CAN distributor circuit board (center box) (see circuit diagram on page 295).
2. Connect plug and shielded connection of cable W168 to the longitudinal travel motor.
3. Restore the original cable routing.
   Refasten cable W168 from the CAN distributor circuit board (center box) up to the longitudinal travel motor.
4. Attach the cover to the center box (see chapter 12.3 on page 41).
5. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
6. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
7. Put on the pad.

TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

20.6 Cable W169

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the energy chain (chain connection [1]) from the inside of the bar (2 screws) to gain access to the screws on the bar cap [2].
5. Be sure to note the cable routing.
   Open the cap [2] on the bar (4 screws) and gently tilt it so the underside of the circuit board is accessible. Jiggle the energy chain back and forth to access the screws on the bar cap.
6. Disconnect the leads of cable W169 [3] from the plug of the CAN distributor circuit board [4] (bar cap).
7. Through the opening in the bar, disconnect the plug of cable W169 [3] and the shielded connection from the motor [5].

Assembly

1. Through the opening in the bar, connect the plug and the shielded connection of cable W169 to the motor.
2. Attach the leads of cable W169 to the plug on the CAN distributor circuit board (bar cap) (see circuit diagram on page 295).
3. Restore the original cable routing.
   Pull cable W166/W167 through the recess on the bar cap and close the cap (4 screws). Make sure that no cables are pinched.
4. Attach the energy chain (chain connection) to the inside of the bar (2 screws).
5. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
6. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
7. Put on the pad.

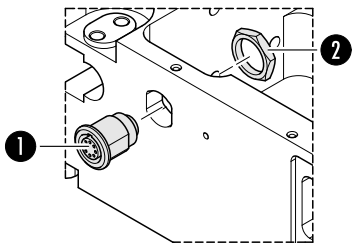
TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

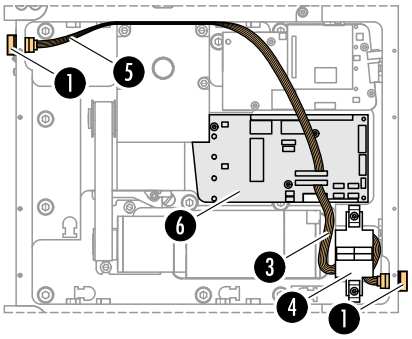
20.7 Cable W170 and W171

Cable W170/W171 is not available on all operating table versions.

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the cover from the center box (see chapter 12.3 on page 41).
5. Pull the cover from the remote control socket.
6. Disconnect the shielded connection from the remote control socket [1] and remove the counter nut [2].





7. Only for cable W171 [3]: Note the cable routing and attachment.
   Remove CAN distributor circuit board [4] in the center box (2 screws) to free cable W171 underneath.
8. Unplug cable W170 [5]/W171 [3] from the motor controller circuit board [6].
9. Disconnect the cable W170/W171 from the plug, so that the cable can be pulled through the counter nut.
10. Note the assembled position of the socket.
    From the outside, pull socket [1] with cable W170/W171out of the center box and the counter nut.
11. Remove the counter nut from the center box.

Assembly

1. Restore the socket to its original assembled position.
   From the outside, carefully pull the cable through the center box and then through the counter nut.
2. Tighten the counter nut.
3. Connect the shielded connection to the connection contact of the socket.
4. Restore the original cable routing.
   Route cable W170/W171 in the center box. Ensure that cable W170 does not get pinched or damaged; the gap between the gear box and the center box is very narrow.

5. Connect the leads of cable W170/W171 to the plug and insert the plug into the socket on the motor controller circuit board (see circuit diagram on page 295).
6. Only for cable W170: Restore the original cable routing and cable attachment.
   Attach the CAN distributor circuit board in the center box (2 screws).
7. Attach the cover on the remote control socket.
8. Attach the cover to the center box (see chapter 12.3 on page 41).
9. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
10. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
11. Put on the pad.

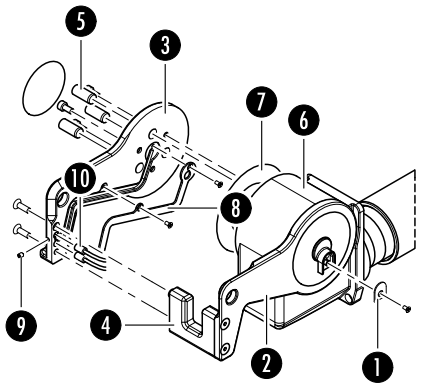
TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

20.8 Coupling point sensor

20.8.1 Operating table without side rail at the joint

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the cover from the center box (see chapter 12.3 on page 41).
5. Remove the drive unit of the leg section (see chapter 13.4 on page 61).



6. Remove the cover plate [1] from the inner coupling plate [2] (1 screw).
7. Disconnect the connection between the outer coupling plate [3] and the coding plate [4] (2 screws).
8. Remove 3 pins [5] from the outer coupling plate with the pin remover.
9. Important: there is a sliding disk [7] between the coupling plate [3] and the gear box [6]. Do not lose the sliding disk. Remove the outer coupling plate (3 screws).
10. Remove the cable cover [8] from the outer coupling plate [3] (2 screws).
11. Remove the threaded pin [9] from the outer coupling plate [3].
12. Pull the sensor [10] out of the outer coupling plate and the sensor cable out of the remaining parts.

Assembly

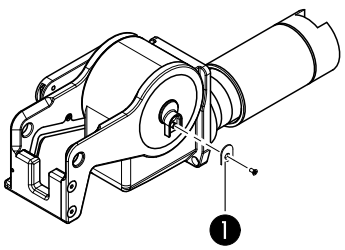
1. Remove any adhesive residue from the coupling plate and degrease.
2. Insert the sensor into the outer coupling plate and secure it with the threaded pin. The sensor must be lock flush against the coupling plate.
3. Lay the sensor cable into the cut-out of the outer coupling plate and mount cable cover (2 screws).
4. Check the sliding disk and replace it if worn or damaged.
5. Pull the sensor cable through the removed parts (sliding disk - gear box with inner coupling plate).
6. Press the sliding disk against the gear box and mount the outer coupling plate to the gear box (3 screws). Make sure the sensor cable does not get pinched.

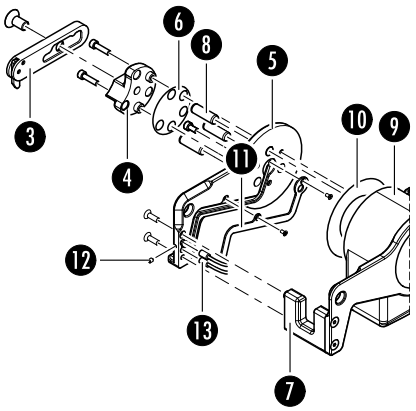
7. Tap the 3 pins on the outer coupling plate into the gear box.
8. Mount the coupling plate on the coding plate (2 screws).
9. Apply a new self-adhesive cover foil to the outer coupling plate.
10. Pull the sensor cable through the cable pass-through.
11. Carefully pull the sensor cable taut and mount the cover plate with the cable pass-through onto the inner coupling plate (1 screw).
12. Mount the drive unit of the leg section (see chapter 13.4 on page 61).
13. Attach the cover to the center box (see chapter 12.3 on page 41).
14. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
15. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
16. Put on the pad.

TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

20.8.2 Operating table with side rail at the joint

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the cover from the center box (see chapter 12.3 on page 41).
5. Remove the drive unit of the leg section (see chapter 13.4 on page 61).
6. Remove the cover plate [1] from the inner coupling plate [2] (1 screw).





7. Remove the side rail [3] from the gear adapter [4] (1 screw).
8. Remove 2 screws from the gear box adapter [4] and remove the gear adapter [4] with a slide hammer from the outer coupling plate [5].
9. Remove the cover foil [6] from the external coupling plate [5].
10. Disconnect the connection between the outer coupling plate [5] and the coding plate [7] (2 screws).
11. Remove 3 pins [8] from the outer coupling plate [5] with the pin remover.
12. Important: there is a sliding disk [10] between the coupling plate [5] and the gear box [9]. Do not lose the sliding disk. Remove the outer coupling plate (1 screw).
13. Remove the cable cover [11] from the outer coupling plate [5] (2 screws).
14. Remove the threaded pin [12] from the outer coupling plate [5].
15. Pull the sensor [13] out of the outer coupling plate and the sensor cable out of the remaining parts.

Assembly

1. Remove any adhesive residue from the coupling plate and degrease.
2. Insert the sensor into the outer coupling plate and secure it with the threaded pin. The sensor must be lock flush against the coupling plate.
3. Lay the sensor cable into the cut-out of the outer coupling plate and mount cable cover (2 screws).
4. Check the sliding disk and replace it if worn or damaged.
5. Pull the sensor cable through the removed parts (sliding disk - gear box with inner coupling plate).
6. Press the sliding disk against the gear box and mount the outer coupling plate to the gear box (1 screw). Make sure the sensor cable does not get pinched.
7. Tap the 3 pins on the outer coupling plate into the gear box. The pins must project about 1 cm out of the coupling plate.
8. Mount the outer coupling plate on the coding plate (2 screws).
9. Apply a new self-adhesive cover foil to the outer coupling plate. Pay attention to the position. The screw on the coupling plate must be covered.
10. Pull the sensor cable through the cable pass-through.
11. Carefully pull the sensor cable taut and mount the cover plate with the cable pass-through onto the inner coupling plate (1 screw).

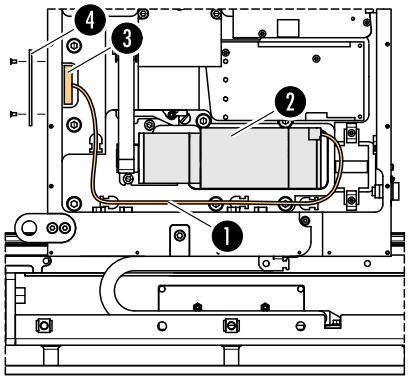
12. Place the gear box adapter on the gear box (outside) and tap it carefully with a plastic hammer until the gear box adapter is flush with the coupling plate.
13. Turn in 2 screws on the gear box adapter.
14. Fasten the side rail to the gear box adapter (1 screw).
15. Mount the drive unit of the leg section (see chapter 13.4 on page 61).
16. Attach the cover to the center box (see chapter 12.3 on page 41).
17. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
18. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
19. Put on the pad.

TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

20.9 OR sensor

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the cover from the center box (see chapter 12.3 on page 41).
5. Remove plug of sensor cable [1] from the longitudinal travel motor [2].
6. Note the cable routing and attachment.
   Remove the cable attachment along the sensor cable from the sensor [3] to the longitudinal travel motor [2].
7. Remove the cover over the OR sensor from the center box (foot end - 4 screws).
8. Remove the sensor cable [1].

Assembly

1. Lay the sensor in the cut-out in the center box.
2. Attach the cover over the OR sensor on the center box (4 screws).
3. Restore the original cable routing.
   Lay the sensor cable in the center box and reattach the cable attachment.
4. Plug the sensor cable plug into the longitudinal travel motor (see circuit diagram on page 295).
5. Attach the cover to the center box (see chapter 12.3 on page 41).
6. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
7. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
8. Put on the pad.

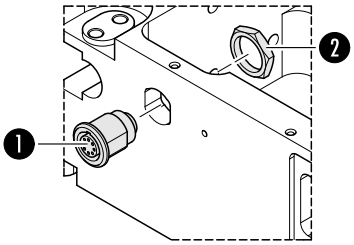
TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

20.10 Cable W193

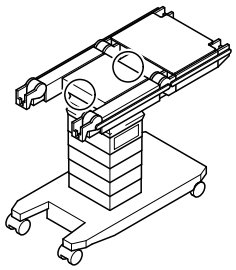
Cable W193 is not available on all operating table versions.

Disassembly

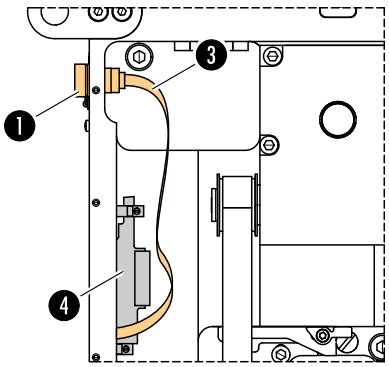
1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.



4. Remove the cover from the center box (see chapter 12.3 on page 41).
5. Pull the cover from the remote control socket.
6. Disconnect the shielded connection from the remote control socket [1] and remove the counter nut [2].



7. Unplug cable W193 [3] from the Endolight interface circuit board [4].
8. Disconnect the leads of cable W193 from the plug, so that the cable can be pulled through the opening in the center box
9. Note the assembled position of the socket.
   From the outside, pull socket [1] with cable W193 out of the center box and the counter nut.
10. Remove the counter nut from the center box.



Assembly

1. Restore the socket to its original assembled position.
   From the outside, carefully pull the cable through the center box and then through the counter nut.
2. Tighten the counter nut.
3. Connect the shielded connection to the connection contact of the socket.
4. Restore the original cable routing.
   Route cable W193 in the center box.

5. Connect the leads of cable W193 to the plug and insert the plug into the socket on the Endolight interface circuit board (see circuit diagram on page 295).
6. Attach the cover on the remote control socket.
7. Attach the cover to the center box (see chapter 12.3 on page 41).
8. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
9. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
10. Put on the pad.

TEST

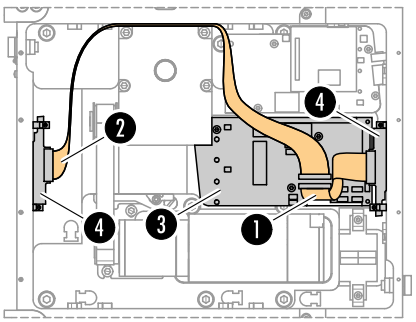
Perform recheck according to IEC 60601-1; perform function test and final check.

20.11 Cable W190/W191

Cable W190/W191 is not available on all operating table versions.

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the pad plate of the seat section (see chapter 12.2 on page 40). Important: keep the back section pad plate attached so that the bar adjustment is retained.
4. Remove the cover from the center box (see chapter 12.3 on page 41).
5. Be sure to note the cable routing.
   Disconnect the plug on cable W190 [1]/W191 [2] from the motor controller circuit board [3] and the Endolight interface circuit board [4].



Assembly

1. Restore the original cable routing.
   Route cable W190/W191 in the center box.
   Ensure that cable W191 does not get pinched or damaged; the gap between the gear box and the center box is very narrow.
2. Insert the plug of cable W190/W191 into the socket on the motor controller circuit board and the Endolight interface circuit board (see circuit diagram on page 295).
3. Attach the cover to the center box (see chapter 12.3 on page 41).
4. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
5. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
6. Put on the pad.

TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

21 Column cables

CAUTION
Risk of personal injury due to conductive parts.

Use extreme caution and care when repairing electrical components. Secure the work area from access by others.

CAUTION
Risk of injury!

Always store tools and removed components securely and make sure no one can trip or fall over them.

CAUTION
Risk of material damage!

Do not let screws, nuts or other parts fall into the operating table! Immediately remove any parts that fell in. Parts that have not been removed can damage other components or cables when the OR table is adjusted. The operating table may not be released to the customer if parts fell in and were not removed.

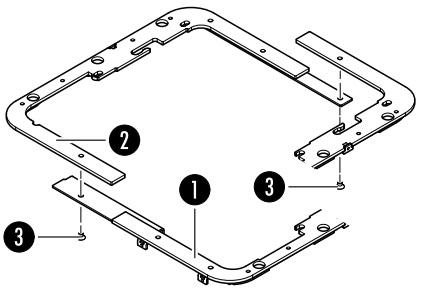
For all screws ≥ M4 without split lock washers, use a medium-strength screw locking agent.

Finally, check the cable routing and fastening and make sure that the cable cannot get between moving parts!

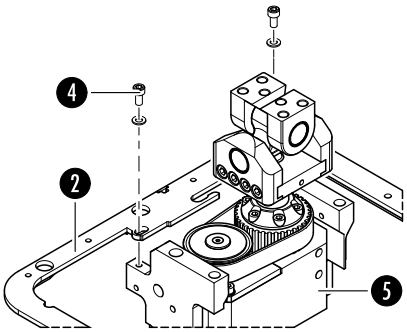
21.1 Cable W104

Disassembly

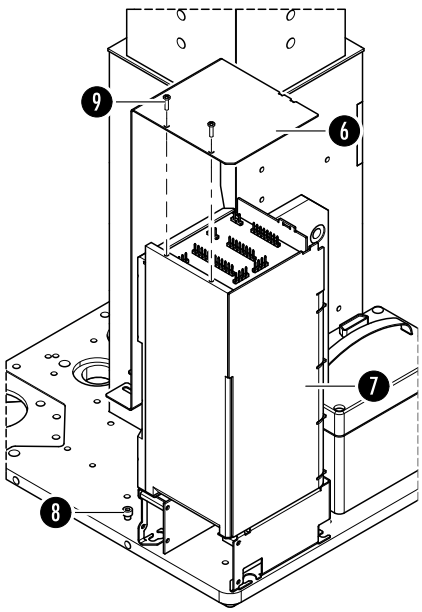
1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Detach the bellows from the cover, carefully guide it up and affix it (see chapter 9 on page 31).
4. Grasp the column cover, remove the holding screw from the Trendelenburg assembly and guide the cover carefully downward.
5. Open the column cover at the top and slide it down (see chapter 9 on page 31).
6. Remove the metal panel with the column keypad (see chapter 14.2 on page 77).
7. Separate the frame pieces [1]/[2] from one another (2 screws [3] from below).

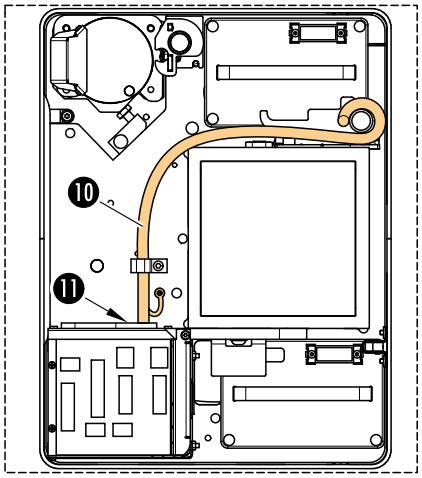


8. Detach frame piece 2 [2] from the tilt left assembly [5] (2 screws [4] with washers).

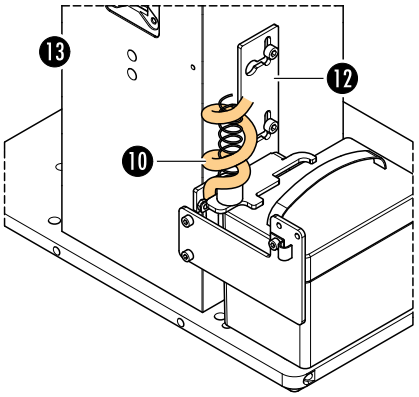


9. Remove the cable deflector [6] from the power supply unit [7]. To do this, unscrew the 2 screws [9] at the top of the power supply unit [7] and loosen the two screws [8] on the column base. Guide the cable deflector out of the screws [8] on the column base and remove it.

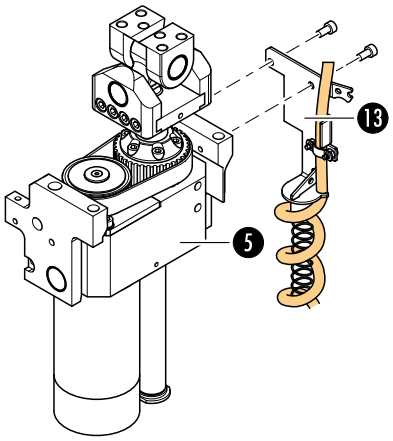




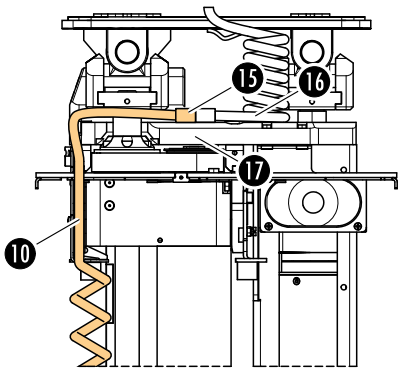
10. Note the cable routing and attachment.
    Unfasten cable W104 [10] from the column base.
11. Unscrew the ground wire connection of cable W104 from the column base (1 screw with 2 washers).
12. Unplug cable W104 [10] from the power supply circuit board [11] in the power supply socket.



13. Note the installation position of the cable hold-down clamp [12].
    Loosen the two screws on the cable hold-down clamp [12] of the spiral cable_back. Carefully guide the cable hold-down clamp [12] along the oblong holes on the guide column [13] and unhinge it.



14. Remove the spiral cable holder [14] of cable W104 from the tilt left assembly [5] (2 screws).
15. Note the cable routing and attachment.
    Unfasten cable W104 from the suspension plate.



16. Disconnect the plug of cable W173 [16] from cable W104 [10] (coupling point [15] on the suspension plate [17]).
17. Remove the ground wire connection of both cables W173 and W104 from the suspension plate [17] (1 screw with 2 washers).
18. Remove cable W104.

Assembly

1. Attach the spiral cable holder of cable W104 to the tilt left

assembly (2 screws).

2. Note the original mounting position of the cable hold-down clamp!

   Do not jam cables! Stick the cable hold-down clamp onto the two screws on the guide column, slide it carefully along the oblong holes, press it down (cable clamp must rest correctly on the battery) and attach it (tighten the 2 screws).

3. Connect cable W173 to W104 (coupling point on the suspension plate).
4. Attach the ground wire connection of cables W173 and W104 to the suspension plate (1 screw with 2 washers).
5. Restore the original cable routing. Note the shield support.

   Refasten cable W104 to the suspension plate.

6. Insert the plug of cable W104 into the socket on the connector board (ST2) (power supply socket) (see circuit diagram on page 295).
7. Attach the ground wire connection of cable W104 to the column base (1 screw with 2 washers).
8. Restore the original cable routing. Note the shield support.

   Refasten cable W104 to the table base.

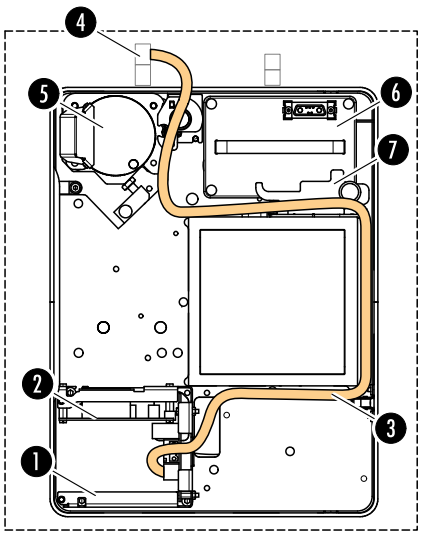
9. Set the cable deflector onto the two screws on the column base and slide it flush against the power supply unit. Mount the cable deflector to the power supply unit (2 screws on the top) and tighten the two screws on the column base.
10. Attach frame piece 2 to frame piece 1 (2 screws from below).
11. Attach frame piece 2 to the tilt left assembly (2 screws with washers).
12. Attach the metal panel with the column keypad (see chapter 14.2 on page 77).
13. Mount the bellows on the frame (see chapter 9 on page 31).
14. Slide the column cover up and close it (see chapter 9 on page 31).
15. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
16. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
17. Put on the pad.

 **TEST**
Perform recheck according to IEC 60601-1; perform function test and final check.

21.2 Cable W159

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove battery 1 (next to the power supply unit) to access cable W159 (see chapter 15.1 on page 106).
4. Remove the power supply unit (see chapter 15.2 on page 109).
5. Note the installation position of the cable hold-down clamp [7].
   Loosen the two screws on the cable hold-down clamp [7] of the spiral cable_back. Carefully guide the cable hold-down clamp along the oblong holes on the guide column and unhinge it.
6. Unplug cable W159 [3] from the power supply circuit board [2] in the power supply socket [1].
7. Unplug the other end of cable W159 [3] from the coupling point [4] in the table base. The opening is at the side of the table base between the lift motor [5] and battery 2 [6].
8. Be sure to note the cable routing.
   Remove cable W159 [3].



Assembly

1. Restore the original cable routing.
   Route cable W159 in the column pot (small plug on the power supply socket, large plug on the table base). The cable has to be routed tightly along the guide column so the battery can be inserted.
2. Guide cable W159 into the power supply socket and plug the plug into the socket on the power supply circuit board (see circuit diagram on page 295).
3. Plug the plug at the other end of cable W159 into the socket of the coupling point (see circuit diagram on page 295). The opening is at the side of the table base between the lift motor and battery 2.
4. Note the original mounting position of the cable hold-down clamp! Do not jam cables!

Stick the cable hold-down clamp onto the two screws on the guide column, slide it carefully along the oblong holes, press it down (cable clamp must rest correctly on the battery) and attach it (tighten the 2 screws).

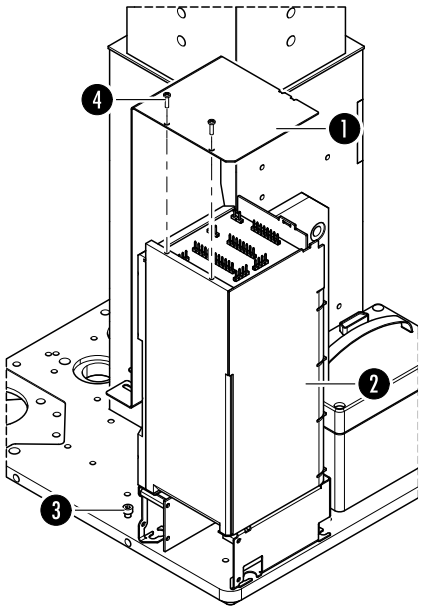
5. Install the power supply unit (see chapter 15.2 on page 109).
6. Insert battery 1 (see chapter 15.1 on page 106).
7. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
8. Put on the pad.

TEST

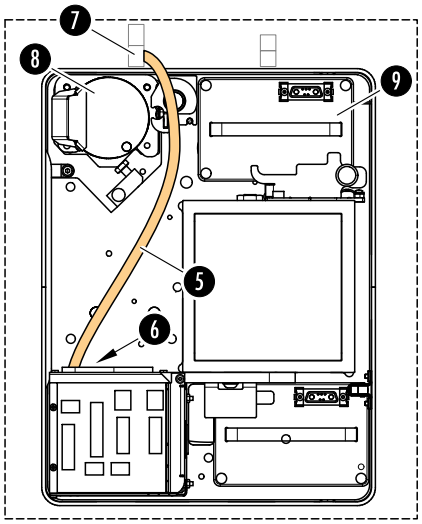
Perform recheck according to IEC 60601-1; perform function test and final check.

21.3 Cable W160

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the cable deflector [1] from the power supply unit [2]. To do this, unscrew the 2 screws [4] at the top of the power supply unit and loosen the two screws [3] on the column base. Guide the cable deflector [1] out of the screws [3] on the column base and remove it.



4. Unplug cable W160 [5] from the connector board (ST2) in the power supply socket [6].
5. Unplug the other end of cable W160 [5] from the coupling point [7] in the table base. The opening is at the side of the table base between the lift motor [8] and battery 2 [9].
6. Note the cable routing and attachment.
   Unfasten cable W160 [5] from the power supply socket [6] up to the side opening in the table base and remove the cable.

Assembly

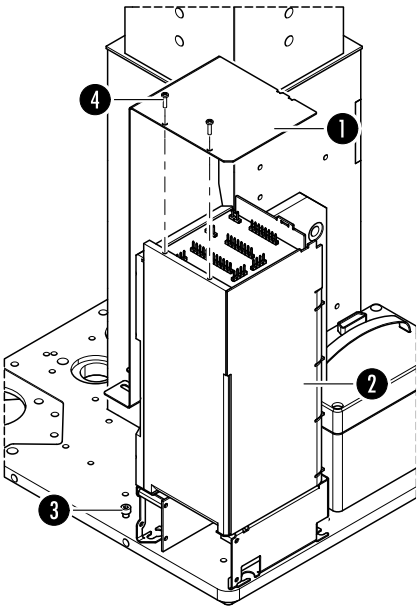
1. Restore the original cable routing.
   Route cable W160 in the column pot.
2. Insert the plug of cable W160 into the socket on the connector board (ST2) (power supply socket) (see circuit diagram on page 295).
3. Plug the plug at the other end of cable W160 into the socket of the coupling point (see circuit diagram on page 295). The opening is at the side of the table base between the lift motor and battery 2.

4. Refasten cable W160 from the power supply socket up to the side opening in the table base.
5. Set the cable deflector onto the two screws on the column base and slide it flush against the power supply unit. Mount the cable deflector to the power supply unit (2 screws on the top) and tighten the two screws on the column base.
6. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
7. Put on the pad.

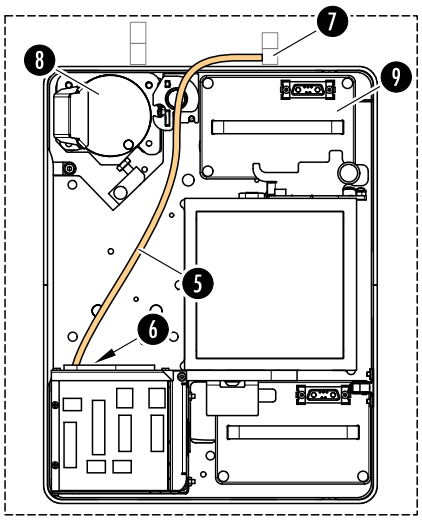
 **TEST**
Perform recheck according to IEC 60601-1; perform function test and final check.

21.4 Cable W161

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the cable deflector [1] from the power supply unit [2]. To do this, unscrew the 2 screws [4] at the top of the power supply unit and loosen the two screws [3] on the column base. Guide the cable deflector [1] out of the screws [3] on the column base and remove it.



4. Unplug cable W161 [5] from the connector board (ST2) in the power supply socket [6].
5. Unplug the other end of cable W161 [5] from the coupling point [7] in the table base. The opening is at the side of the table base between the lift motor [8] and battery 2 [9].
6. Note the cable routing and attachment.
   Unfasten cable W161 [5] from the power supply socket [6] up to the side opening in the table base and remove the cable.

Assembly

1. Restore the original cable routing.
   Route cable W161 in the column pot (large plug on the power supply socket, small plug on the table base).
2. Insert the plug of cable W161 into the socket on the connector board (ST2) (power supply socket) (see circuit diagram on page 295).
3. Plug the plug at the other end of cable W161 into the socket of the coupling point (see circuit diagram on page 295). The

opening is at the side of the table base between the lift motor and battery 2.

4. Refasten cable W161 from the power supply socket up to the side opening in the table base.
5. Set the cable deflector onto the two screws on the column base and slide it flush against the power supply unit. Mount the cable deflector to the power supply unit (2 screws on the top) and tighten the two screws on the column base.
6. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
7. Put on the pad.

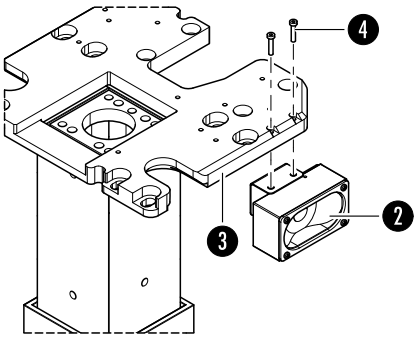
TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

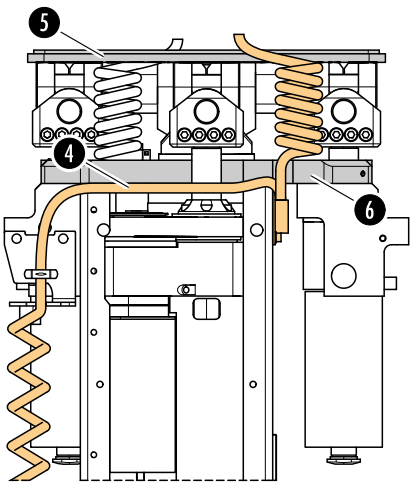
21.5 Cable W164

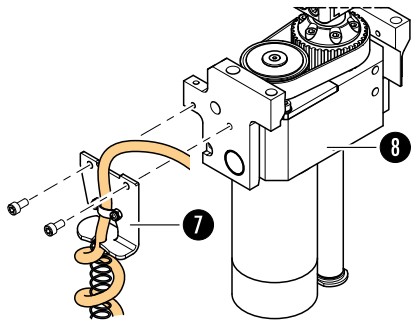
Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the table top (see chapter 12.1 page 38).
4. Remove the bellows (see chapter 14.3 on page 78).
5. Grasp the column cover, remove the holding screw from the Trendelenburg assembly and guide the cover carefully downward.
6. Open the column cover at the top and slide it down (see chapter 9 on page 31).
7. Remove the metal panel with the column keypad (see chapter 14.2 on page 77).
8. Remove the frame (connection ring) (see chapter 14.4 on page 79).
9. Unscrew the speaker [1] from the suspension plate [2] (from above, 2 screws [3]) and place them securely on the column.

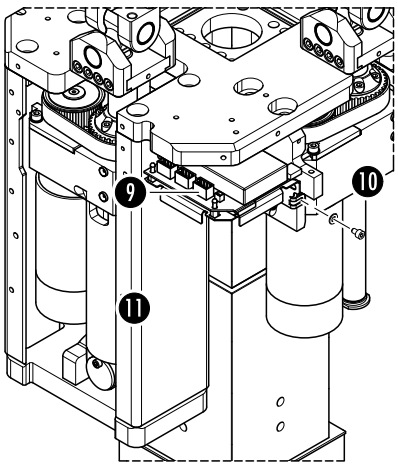


10. Note the cable routing and attachment.
    Unfasten cable W164 [4] under the mounting plate [5].
11. Note the cable routing and attachment.
    Unfasten cable W164 [4] from the suspension plate [6].

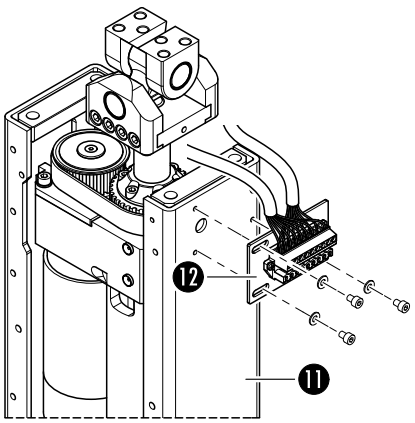




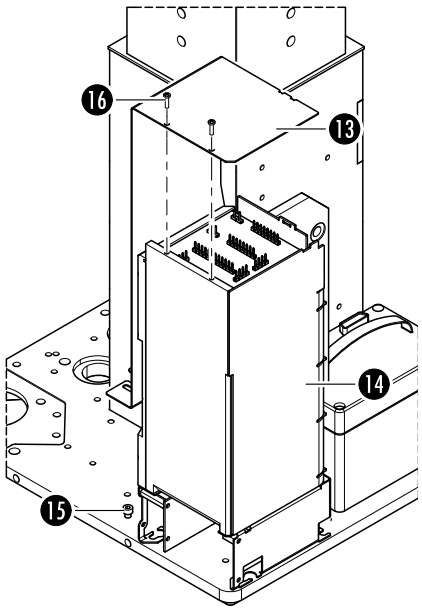
12. Remove the upper spiral cable holder [7] of cable W164 from the tilt left assembly [8] (2 screws).



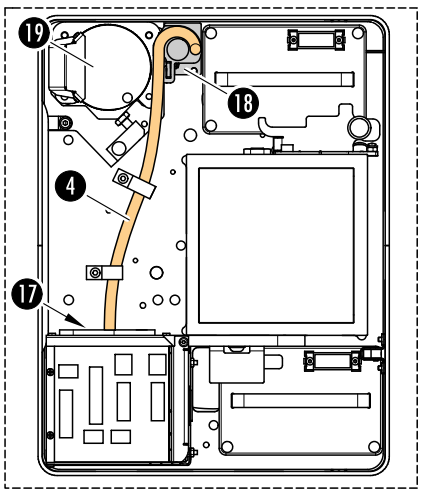
13. Unscrew the column controller [9] from the tilt right assembly [10] (1 screw with washer), carefully disconnect it from the plug contact (W164) on the Trendelenburg assembly [11] and place on non-conductive material of the column.



14. Be sure to note the cable routing.
    Unscrew the holder with plug contact (W164) [12] from the Trendelenburg assembly [11] (3 screws with washers).



15. Remove the cable deflector [13] from the power supply unit [14]. To do this, unscrew the 2 screws [16] at the top of the power supply unit [14] and loosen the two screws [15] on the column base. Guide the cable deflector out of the screws [15] on the column base and remove it.



16. Note the cable routing and attachment.
    Unfasten cable W164 [4] from the column base.
17. Unplug cable W164 [4] from the power supply circuit board [17] in the power supply socket.
18. Remove the lower spiral cable holder [18] next to the lift motor [19] from the column base (1 screw).
19. Remove cable W164.

Assembly

1. Attach the upper spiral cable holder of cable W164 to the tilt left assembly (2 screws).
2. Attach the lower spiral cable holder next to the lift motor on the column base (1 screw). Make sure that the cylindrical pin on the column base sits in the cut-out in the holder.
3. Insert the plug of cable W164 into the socket on the connector board (ST2) (power supply socket) (see circuit diagram on page 295).
4. Restore the original cable routing. Note the shield support.
   Refasten cable W164 to the column base.
5. Set the cable deflector onto the two screws on the column base and slide it flush against the power supply unit. Mount the cable deflector to the power supply unit (2 screws on the top) and tighten the two screws on the column base.

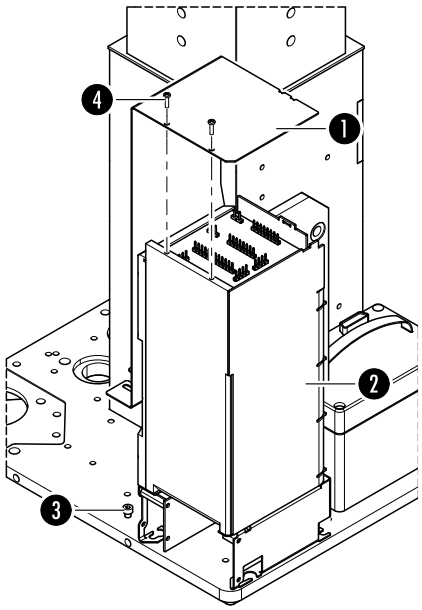
6. Mount the holder with plug contact (W164) to the Trendelenburg assembly (3 screws with washers).
7. Restore the original cable routing. Note the shield support. Refasten cable W164 to the suspension plate.
8. Connect the column controller to the plug contact (W164) on the Trendelenburg assembly and mount it on the tilt right assembly (1 screw with washer).
9. Restore the original cable routing. Note the shield support. Refasten cable W164 to the underside of the mounting plate and the top of the suspension plate.
10. Attach the frame (connection ring) (see chapter 14.4 on page 79).
11. Attach the bellows (see chapter 14.3 on page 78).
12. Attach the table top (see chapter 12.1 on page 38).
13. Attach the cover to the center box (see chapter 12.3 on page 41).
14. Attach the pad plate to the seat section bars (see chapter 12.2 on page 40).
15. Attach the metal panel with the column keypad (see chapter 14.2 on page 77).
16. Slide the column cover up and close it (see chapter 9 on page 31).
17. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
18. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
19. Put on the pad.

TEST

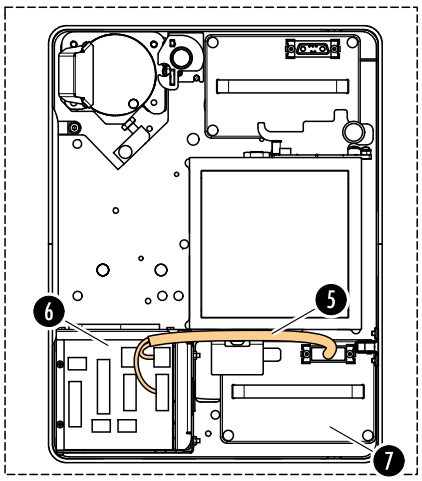
Perform recheck according to IEC 60601-1; perform function test and final check.

21.6 Cable W134

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the cable deflector [1] from the power supply unit [2]. To do this, unscrew the 2 screws [4] at the top of the power supply unit and loosen the two screws [3] on the column base. Guide the cable deflector [1] out of the screws [3] on the column base and remove it.



4. Pull both plugs of cable W134 [5] from the power board (PB1) [6] on the power supply unit.
5. Note the cable routing and attachment.
   Unfasten cable W134 [5] from battery 1 [7] up to the connector board [6] on the power supply unit and remove cable W134.

Assembly

1. Restore the original cable routing.
   Route cable W134 in the column pot.
2. Insert the plugs (2x) of cable W134 into the sockets on the power board (PB1) (power supply unit) (see circuit diagram on page 295).
3. Note the shield support.
   Refasten cable W134 from the power supply unit up to battery 1.
4. Set the cable deflector onto the two screws on the column base and slide it flush against the power supply unit. Mount the

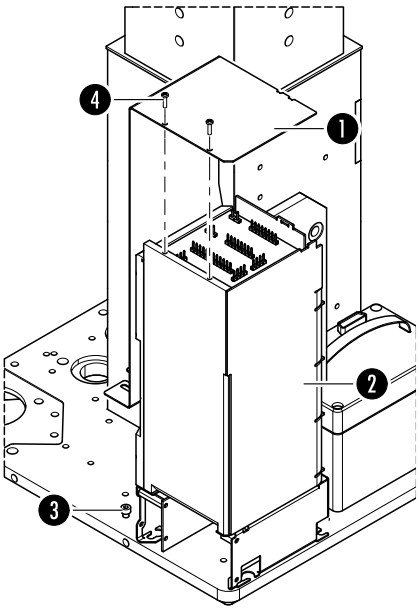
cable deflector to the power supply unit (2 screws on the top) and tighten the two screws on the column base.

5. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
6. Put on the pad.

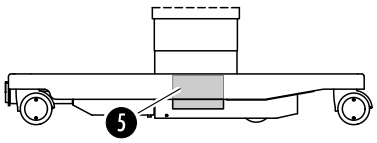
 **TEST**
Perform recheck according to IEC 60601-1; perform function test and final check.

21.7 Cable W172

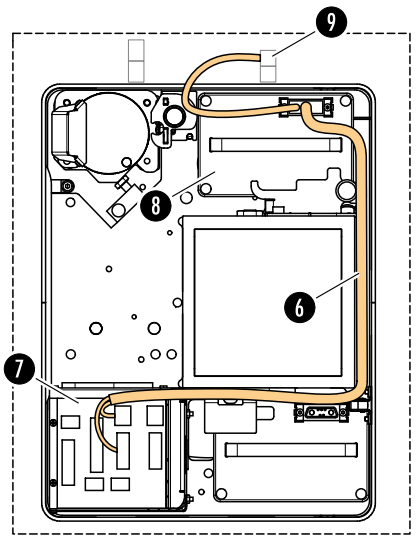
Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the cable deflector [1] from the power supply unit [2]. To do this, unscrew the 2 screws [4] at the top of the power supply unit [2] and loosen the two screws [3] on the column base. Guide the cable deflector out of the screws [3] on the column base and remove it.



4. Remove the cover [5] over the coupling point on the side of table base (2 screws).
5. Unplug the cable W172 [6] from the coupling point [9] in the table base.
6. Pull both plugs at the other end of cable W172 [6] from the power board (PB1) [7] on the power supply unit.
7. Note the cable routing and attachment.
   Remove cable attachment along cable W172 [6] from battery 2 [8] to the connector board [7] on the power supply unit and from battery 2 [8] to the coupling point [9] on the table base. Remove cable W172 [6].



Assembly

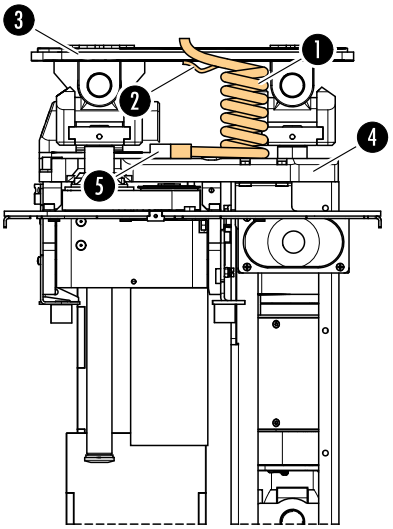
1. Restore the original cable routing.
   Route cable W172 in the column pot.

2. Insert the plugs (2x) of cable W172 into the sockets on the power board (PB1) (power supply unit) (see circuit diagram on page 295).
3. Route the small plug at the other end of cable W172 through the side opening of the table base, and from the outside insert the plug into the coupling point socket (see circuit diagram on page 295).
4. Attach the cover over the coupling point on the table base (2 screws).
5. Note the shield support.
   Refasten cable W172 from battery 2 up to the power supply unit and from battery 2 to the coupling point.
6. Set the cable deflector onto the two screws on the column base and slide it flush against the power supply unit. Mount the cable deflector to the power supply unit (2 screws on the top) and tighten the two screws on the column base.
7. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
8. Put on the pad.

 **TEST**
Perform recheck according to IEC 60601-1; perform function test and final check.

21.8 Cable W173

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the table top (see chapter 12.1 page 38).
4. Remove the bellows (see chapter 14.3 on page 78).
5. Remove the ground wire connection [2] of cable W173 [1] under the mounting plate (1 screw with 2 washers).
6. Note the cable routing and attachment.
   Unfasten cable W173 [1] from under the mounting plate [3].
7. Note the cable routing and attachment.
   Unfasten cable W173 [1] from the suspension plate [4].
8. Disconnect the plug of cable W173 [1] from cable W104 (coupling point [5] on the suspension plate [4]).
9. Remove the ground wire connection of both cables W173 and W104 from the suspension plate (1 screw with 2 washers).
10. Be sure to note the cable routing.
    Pull cable W173 [1] down out of the mounting plate and remove it.

Assembly

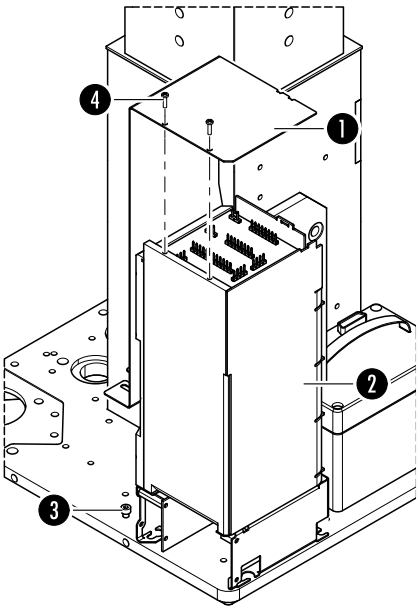
1. Restore the original cable routing. Note the shield support.
   Insert cable W173 between the mounting plate and the suspension plate. Refasten cable W173 to the suspension plate and the mounting plate.
2. Connect cable W173 to W104 (coupling point on the suspension plate).
3. Attach the ground wire connection of cable W173 under the mounting plate (1 screw with 2 washers).
4. Attach the ground wire connection of cables W173 and W104 to the suspension plate (1 screw with 2 washers).
5. Attach the bellows (see chapter 14.3 on page 78).
6. Attach the table top (see chapter 12.1 on page 38).
7. Mount the cover to the center box (20 screws).
8. Mount the pad plate to the bars (6 screws).
9. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).

10. Put on the pad.

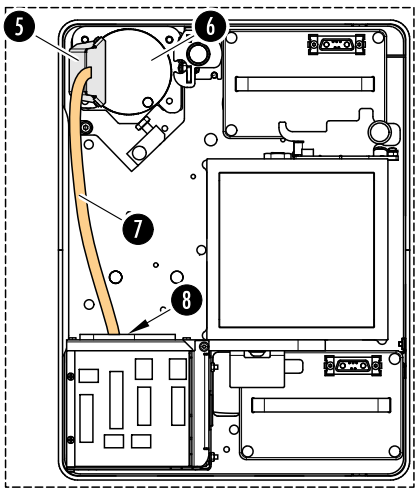
 TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

21.9 Cable W107

Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the cable deflector [1] from the power supply unit [2]. To do this, unscrew the 2 screws [4] at the top of the power supply unit [2] and loosen the two screws [3] on the column base. Guide the cable deflector out of the screws [3] on the column base and remove it.



4. Remove the protective cover [5] on the lift motor [6] (unscrew the 2 screws and carefully pull out the protective cover).
5. Unplug cable W107 [7] from the connector board (ST2) in the power supply socket [8].
6. Disconnect the plug and shielded connection from the lift motor [6].
7. Note the cable routing and attachment.
   Unfasten cable W107 [7] from the power supply socket [8] up to the lift motor [6]. Remove cable W107 [7].

Assembly

1. Restore the original cable routing.
   Route cable W107 in the column pot.
2. Insert the plug of cable W107 into the socket on the connector board (ST2) (power supply socket) (see circuit diagram on page 295).
3. Connect the plug and shielded connection of cable W107 to the lift motor.
4. Attach the protective cover to the lift motor (2 screws).
5. Note the shield support.

Refasten cable W107 from the lift motor up to power supply socket.

6. Set the cable deflector onto the two screws on the column base and slide it flush against the power supply unit. Mount the cable deflector to the power supply unit (2 screws on the top) and tighten the two screws on the column base.
7. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
8. Put on the pad.

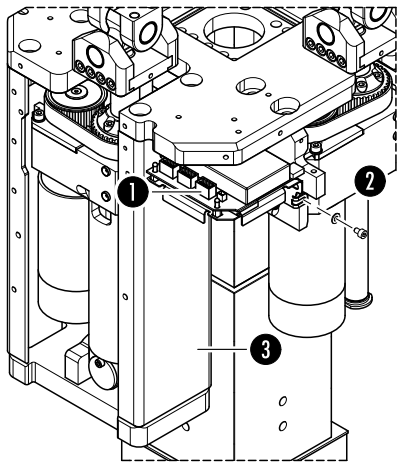
TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

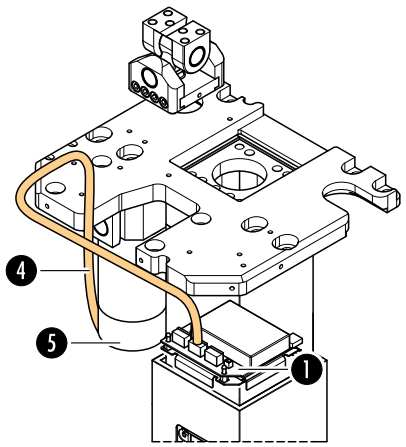
21.10 Cable W108

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Open the column cover at the top and slide it down (see chapter 9 on page 31).
4. Detach the bellows from the cover, carefully guide it up and affix it (see chapter 9 on page 31).
5. Remove the metal panel with the column keypad (see chapter 14.2 on page 77).



6. Unscrew the column controller [1] from the tilt right assembly [2] (1 screw with washer), carefully disconnect it from the plug contact (W164) on the Trendelenburg assembly [3] and place on non-conductive material of the column.
7. Unplug cable W108 [4] from the column controller [1].
8. Disconnect the plug and shielded connection from the tilt left motor [5].
9. Be sure to note the cable routing.
   Unfasten cable W108 [4] from the column controller [1] up to the tilt left motor [5].



10. Remove cable W108 [4].

Assembly

1. Restore the original cable routing.
   Route cable W108 in the column.
2. Insert the plug of cable W108 into the socket on the column controller (see circuit diagram on page 295).
3. Connect plug and shielded connection of cable W108 to the tilt left motor.

4. Connect the column controller to the plug contact on the Trendelenburg assembly and mount it on the tilt right assembly (1 screw with washer).
5. Refasten cable W108 from the tilt left motor up to the column controller. Note the shield support.
6. Attach the metal panel with the column keypad (see chapter 14.2 on page 77).
7. Mount the bellows on the frame (see chapter 9 on page 31).
8. Slide the column cover up and close it (see chapter 9 on page 31).
9. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
10. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
11. Put on the pad.

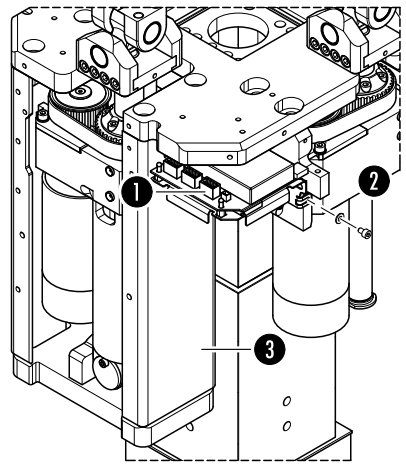
TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

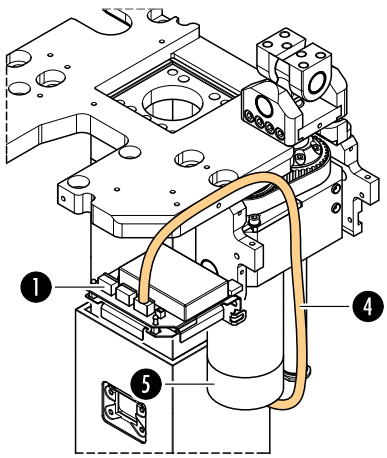
21.11 Cable W109

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Open the column cover at the top and slide it down (see chapter 9 on page 31).
4. Detach the bellows from the cover, carefully guide it up and affix it (see chapter 9 on page 31).
5. Remove the metal panel with the column keypad (see chapter 14.2 on page 77).



6. Unscrew the column controller [1] from the tilt right assembly [2] (1 screw with washer), carefully disconnect it from the plug contact (W164) on the Trendelenburg assembly [3] and place on non-conductive material of the column.



7. Unplug cable W109 [4] from the column controller [1].
8. Disconnect the plug and shielded connection from the tilt right motor [5].
9. Be sure to note the cable routing.
   Unfasten cable W109 [4] from the column controller [1] up to the tilt right motor [5].
10. Remove cable W109 [4].

Assembly

1. Restore the original cable routing.
   Route cable W109 in the column.
2. Insert the plug of cable W109 into the socket on the column controller (see circuit diagram on page 295).
3. Connect plug and shielded connection of cable W109 to the tilt right motor.

4. Connect the column controller to the plug contact on the Trendelenburg assembly and mount it on the tilt right assembly (1 screw with washer).
5. Refasten cable W109 from the tilt right motor up to the column controller. Note the shield support.
6. Attach the metal panel with the column keypad (see chapter 14.2 on page 77).
7. Mount the bellows on the frame (see chapter 9 on page 31).
8. Slide the column cover up and close it (see chapter 9 on page 31).
9. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
10. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
11. Put on the pad.

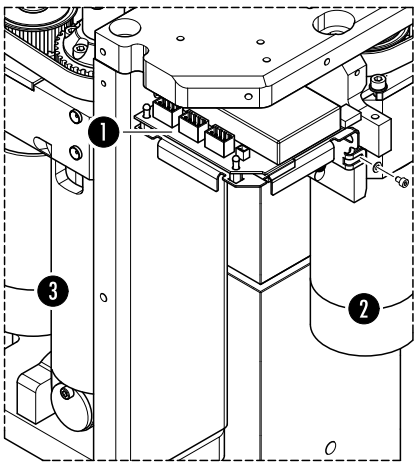
TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

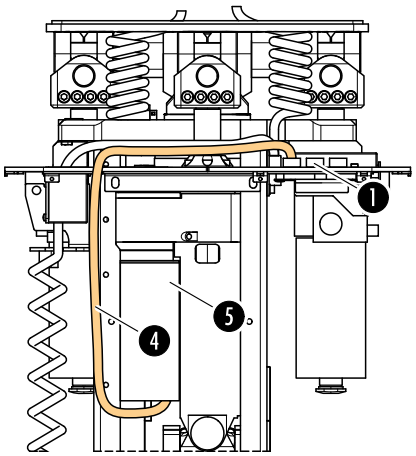
21.12 Cable W110

Disassembly

1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Open the column cover at the top and slide it down (see chapter 9 on page 31).
4. Detach the bellows from the cover, carefully guide it up and affix it (see chapter 9 on page 31).
5. Remove the metal panel with the column keypad (see chapter 14.2 on page 77).
6. Unscrew the column controller [1] from the tilt right assembly [2] (1 screw with washer), carefully disconnect it from the plug contact (W164) on the Trendelenburg assembly [3] and place on non-conductive material of the column.



7. Unplug cable W110 [4] from the column controller [1].
8. Disconnect the plug and shielded connection from the Trendelenburg motor [5].
9. Be sure to note the cable routing.
   Unfasten cable W110 [4] from the column controller [1] up to the Trendelenburg motor [5].
10. Remove cable W110.



Assembly

1. Restore the original cable routing.
   Route cable W110 in the column.
2. Insert the plug of cable W110 into the socket on the column controller (see circuit diagram on page 295).
3. Connect plug and shielded connection of cable W110 to the Trendelenburg motor.

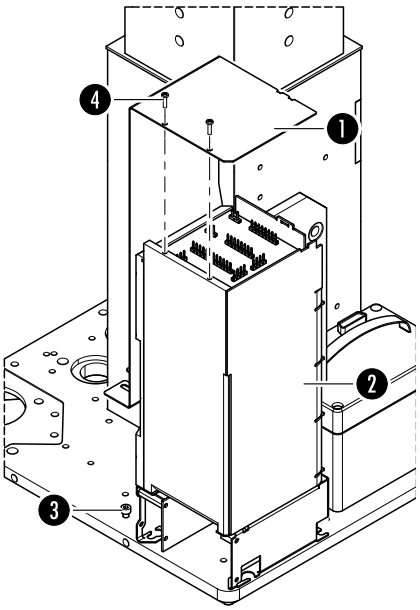
4. Connect the column controller to the plug contact on the Trendelenburg assembly and mount it on the tilt right assembly (1 screw with washer).
5. Refasten cable W110 from the Trendelenburg motor up to the column controller. Note the shield support.
6. Attach the metal panel with the column keypad (see chapter 14.2 on page 77).
7. Mount the bellows on the frame (see chapter 9 on page 31).
8. Slide the column cover up and close it (see chapter 9 on page 31).
9. Open the column cover at the bottom to establish the power supply (see chapter 8 on page 30).
10. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
11. Put on the pad.

TEST

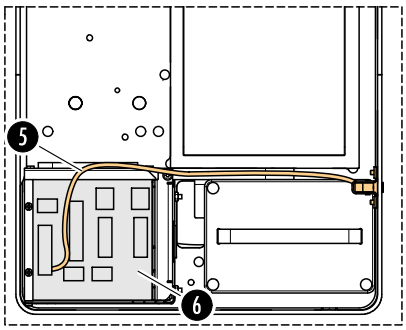
Perform recheck according to IEC 60601-1; perform function test and final check.

21.13 Reset switch

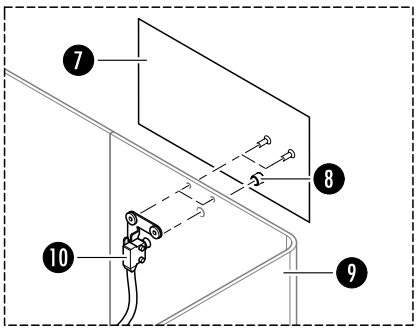
Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Remove the cable deflector [1] from the power supply unit [2]. To do this, unscrew the 2 screws [4] at the top of the power supply unit [2] and loosen the two screws [3] on the column base. Guide the cable deflector out of the screws [3] on the column base and remove it.



4. Pull the plug of the reset switch [5] from the power board (PB1) [6] on the power supply unit.



5. Remove a piece of the cover foil [7] from the column pot [9] (head end).
6. From the outside, remove the end cap [8] of the reset switch [10] on the column pot [9] (head end).
7. Be sure to note the cable routing.
   Unfasten the connection cable from the reset switch up to the power supply unit and remove the cable.
8. Remove the reset switch [10] from the column pot [9] (2 screws).

Assembly

1. Mount the reset switch to the column pot (2 screws). The cable connection faces down.

2. Insert the plug of the reset switch into the socket on the power board (PB1) (power supply unit) (see circuit diagram on page 295).
3. Restore the original cable routing.
   Reattach the cable attachment along the connection cable from the reset switch up to power supply unit.
4. Set the cable deflector onto the two screws on the column base and slide it flush against the power supply unit. Mount the cable deflector to the power supply unit (2 screws on the top) and tighten the two screws on the column base.
5. Check and clean the end cap of the reset switch and replace it if worn or damaged. Insert the end cap on the column pot.
6. Check the cover foil and replace it if damaged. Apply cover foil to the column pot.
7. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
8. Put on the pad.

 **TEST**
Perform recheck according to IEC 60601-1; perform function test and final check.

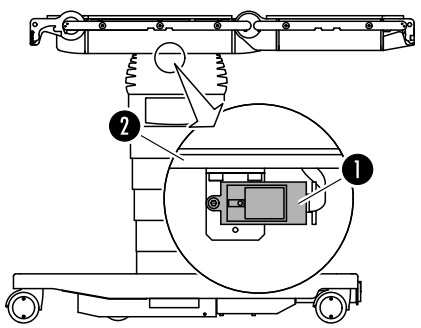
21.14 Power sensor on the Trendelenburg drive

The power sensor is permanently attached to the cardan and is not replaced separately. In the event of a defect, the cardan is replaced (see chapter 15.15 on page 137).

21.15 Cable adapter

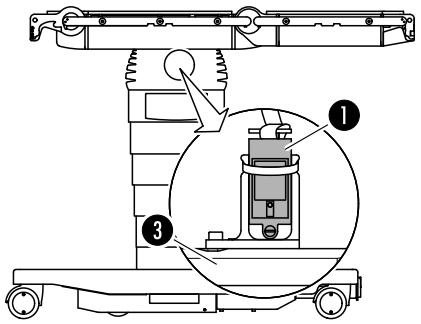
The cable adapter is not available on all operating table versions (only operating tables with the ISM module).

21.15.1 Option A



The holder is located on the underside of the mounting plate [2] (left side) in the ISM module [1]. The ISM module must be retrofitted. See chapter 15.17 on page 141.

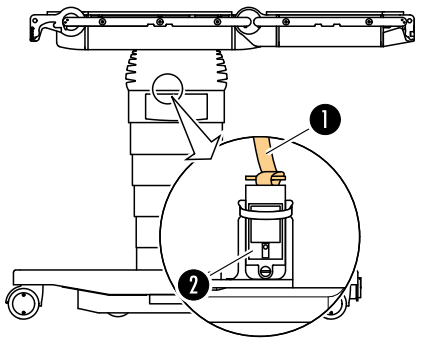
21.15.2 Option B



The holder is fitted on the top of the suspension plate [3] (left side) in the ISM module [1].

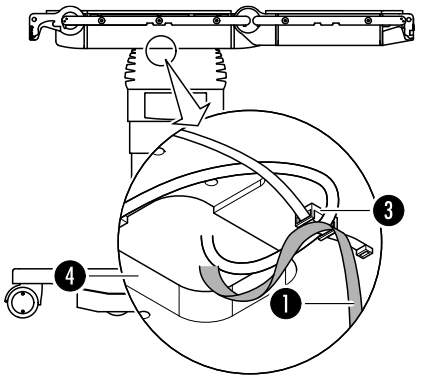
Disassembly

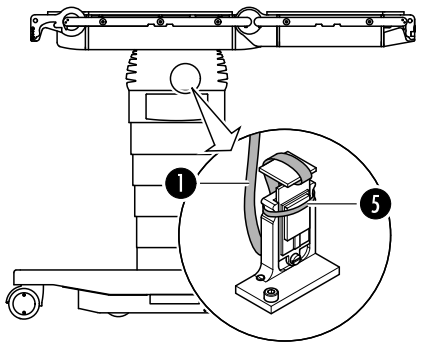
1. Prepare the operating table (see chapter 7 on page 29).
2. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
3. Detach the bellows from the cover, carefully guide it up and affix it (see chapter 9 on page 31).
4. Remove the cable tie from the ISM module.
5. Be sure to note the cable routing.
   Pull the cable adapter [1] from the ISM module [2] (the holder containing the ISM module is located on the top of the suspension plate - left side).
6. Be sure to note the cable routing.
   Unfasten the cable at the upper attachment point (cable holder on the base of the mounting plate).
7. Remove the cable adapter plug from the underside of the motor controller circuit board. The motor controller circuit



board can be accessed through the opening in the mounting plate.

Assembly





1. Insert the cable adapter plug into the ISM module socket.
2. Pull the cable adapter [1] straight up and secure to the cable holder [3] (with Trendelenburg cable power sensor). Ensure that the cable adapter can move in a straight direction.
3. Restore the original cable routing.
   Turn the cable adapter [1] between the upper attachment point [3] and the opening [4] in the middle cabinet by 180°, and then plug in the plug from below in the socket of the motor controller circuit board.
4. Secure the cable adapter [1] with a cable tie [5] on the ISM module [2].
5. **TEST**

   Perform a function test.

   Check position of cable. The cable adapter must not hang too loose or be stretched too taut between the upper attachment point (mounting plate) and the ISM module.
6. Mount the bellows on the frame (see chapter 9 on page 31).
7. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
8. Put on the pad.
9. Update the software (see the software description from the CAN test center).

TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

22 Table base cables

CAUTION
Risk of personal injury due to conductive parts.

Use extreme caution and care when repairing electrical components. Secure the work area from access by others.

CAUTION
Risk of injury!

Always store tools and removed components securely and make sure no one can trip or fall over them.

CAUTION
Risk of material damage!

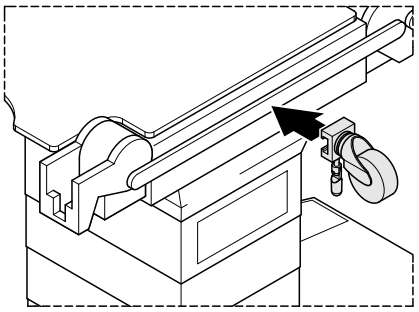
Do not let screws, nuts or other parts fall into the operating table! Immediately remove any parts that fell in. Parts that have not been removed can damage other components or cables when the OR table is adjusted. The operating table may not be released to the customer if parts fell in and were not removed.

For all screws ≥ M4 without split lock washers, use a medium-strength screw locking agent.

Finally, check the cable routing and fastening and make sure that the cable cannot get between moving parts!

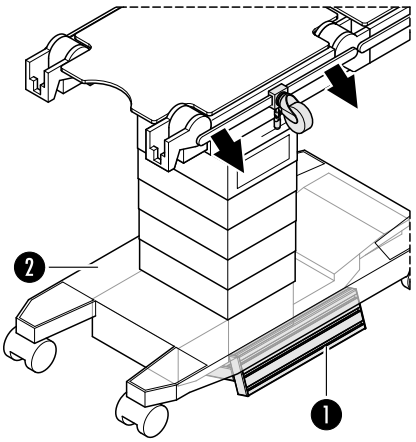
22.1 Cable W150

Disassembly

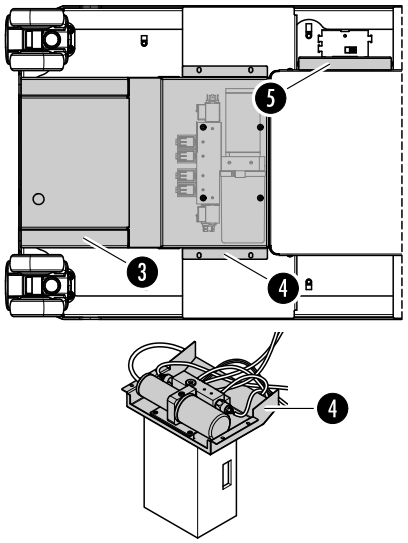


1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the left side rail [18] of the seat section.
3. **CAUTION**
   Risk of material damage!
   The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).
4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).

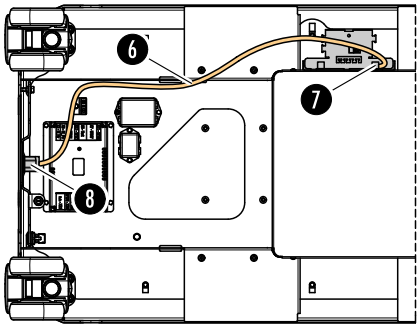


5. Slide the multifunction tool [1] mounted as a T under the table base [2].
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points down) and set it on the star wheel.
   After placing the table on its side, do not activate the hydraulics system to prevent air from seeping into the hydraulic hoses.



7. Remove the left cover [3] under the table base (4 screws).
8. Caution: the assembly is attached to the cover. Provide a suitable aid (for example a crate or carton) near the table base so the assembly can be placed on it. The cables are not long enough for the assembly to be placed on the floor.
   Remove the center cover [4] under the table base (4 screws with washers) and store it carefully.
9. Remove the cover [5] over the coupling point on the side of table base (2 screws).

[18] Side with the column keypad



10. Unplug cable W150 [6] from the coupling point [7].
11. Pull both plugs at the other end of cable W150 [6] from the line power socket [8].
12. Note the cable routing and attachment.
    Unfasten cable W150 [6] from the line power socket [8] up to the coupling point [7] and remove cable W150.

Assembly

1. Restore the original cable routing.
   Route cable W150 in the table base
2. **CAUTION**
   Risk of material damage due to incorrect connector pin assignment!
   Do not interchange the connections! Maintain the plug and socket assignments (see circuit diagram on page 295).

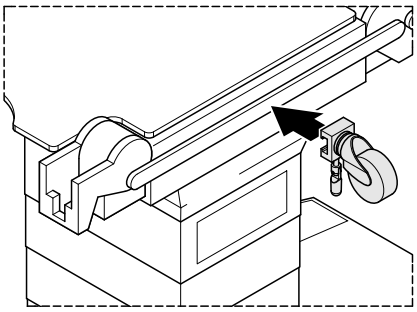
   Insert the plug of cable W150 into the line power socket (see circuit diagram on page 295).
3. Plug the plug at the other end of cable W150 into the socket of the coupling point (see circuit diagram on page 295).
4. Refasten cable W150 from the line power socket motor up to the coupling point.
5. Attach the cover over the coupling point on the table base (2 screws).
6. Restore the original cable routing. Check all connections on the assembly to be sure they are secure.
   Carefully insert the cover with the assembly into the table base and mount it (4 screws with washers).
7. Mount the cover above the control module (4 screws).
8. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
9. Remove the multifunction tool.
10. Remove the toothed wheel.
11. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
12. Lock operating table (brake)

13. Put on the pad.

 TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

22.2 Cable W151

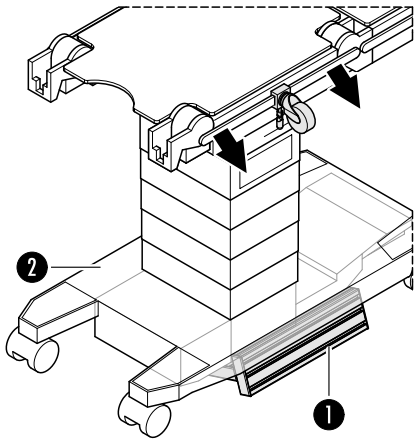
Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the left side rail [19] of the seat section.
3.

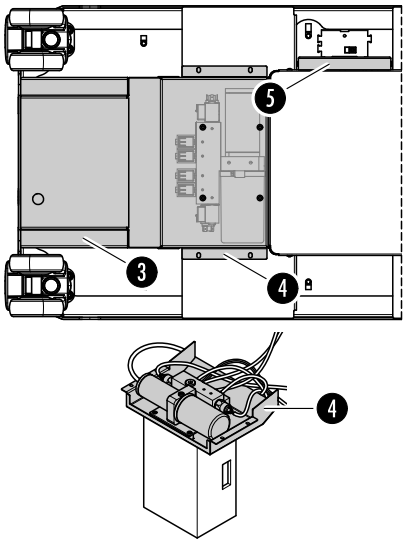
> **CAUTION**
> **Risk of material damage!**
>
> The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).
4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).



5. Slide the multifunction tool [1] mounted as a T under the table base [2].
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points down) and set it on the star wheel.

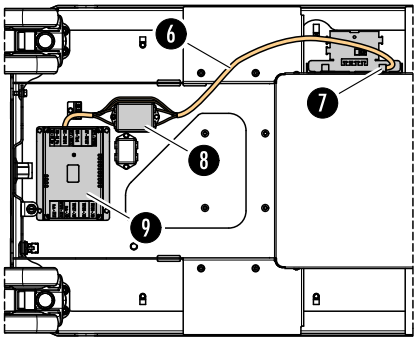
   After placing the table on its side, do not activate the hydraulics system to prevent air from seeping into the hydraulic hoses.



7. Remove the left cover [3] under the table base (4 screws).
8. Caution: the assembly is attached to the cover. Provide a suitable aid (for example a crate or carton) near the table base so the assembly can be placed on it. The cables are not long enough for the assembly to be placed on the floor.

   Remove the center cover [4] under the table base (4 screws with washers) and store it carefully.
9. Remove the cover [5] over the coupling point [7] on the side of table base (2 screws).

[19] Side with the column keypad



10. Remove all plugs from the cable W151 [6]:
    a) 1 plug from the coupling point [7]
    b) 4 plugs from the large filter [8] (12A)
    c) 1 plug from the control module [9]
11. Note the cable routing and attachment.
    Unfasten cable W151 from the control module up to the coupling point and remove cable W151.

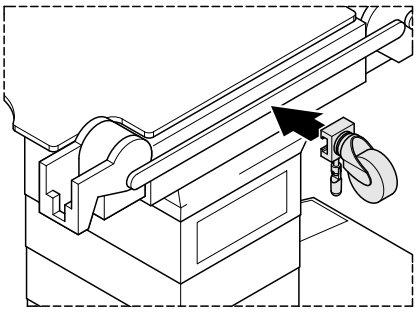
Assembly

1. Restore the original cable routing.
   Route cable W151 in the table base.
2. Plug in all the plugs of cable W151 (see circuit diagram on page 295).
   a) 1 plug into the socket of the coupling point
   b) 4 plugs in the large filter (12A)
   c) 1 plug into the socket on the control module
3. Refasten cable W151 from the control module up to the coupling point. Note the shield support.
4. Attach the cover over the coupling point on the table base (2 screws).
5. Restore the original cable routing. Check all connections on the assembly to be sure they are secure.
   Carefully insert the cover with the assembly into the table base and mount it (4 screws with washers).
6. Mount the cover above the control module (4 screws).
7. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
8. Remove the multifunction tool.
9. Remove the toothed wheel.
10. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
11. Lock operating table (brake)
12. Put on the pad.

TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

22.3 Cable W152

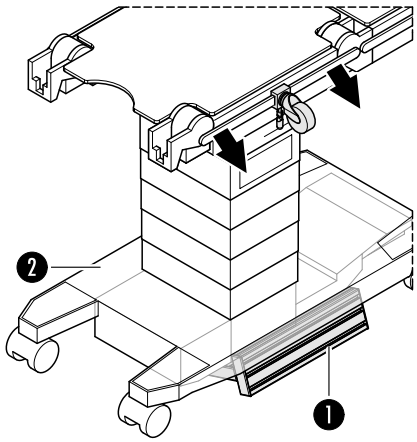
Disassembly



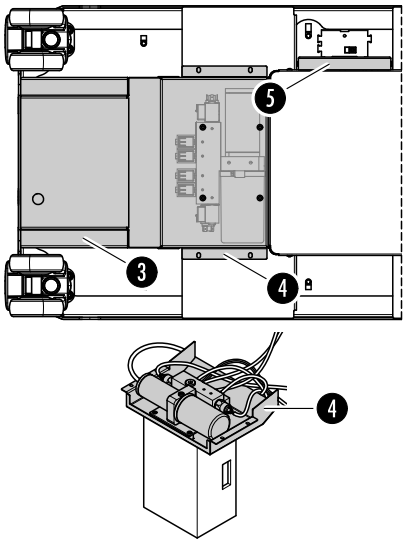
1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the left side rail [20] of the seat section.
3.

> **CAUTION**
> **Risk of material damage!**
>
> The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).
4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).

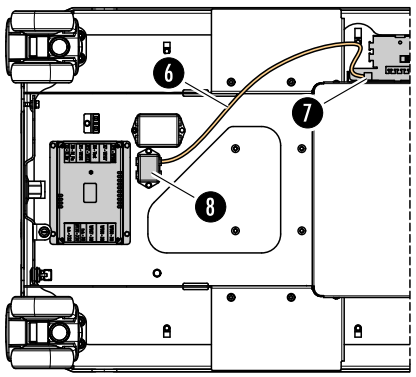


5. Slide the multifunction tool [1] mounted as a T under the table base [2].
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points down) and set it on the star wheel.
   After placing the table on its side, do not activate the hydraulics system to prevent air from seeping into the hydraulic hoses.



7. Remove the left cover [3] under the table base (4 screws).
8. Caution: the assembly is attached to the cover. Provide a suitable aid (for example a crate or carton) near the table base so the assembly can be placed on it. The cables are not long enough for the assembly to be placed on the floor.
   Remove the center cover [4] under the table base (4 screws with washers) and store it carefully.

[20] Side with the column keypad



9. Remove the cover [5] over the coupling point [7] on the side of table base (2 screws).
10. Unplug cable W152 [6] from the coupling point [7].
11. Disconnect the plug at the other end of cable W152 [6] from the small filter [8] (1A).
12. Note the cable routing and attachment.
    Unfasten cable W152 [6] from the filter [8] up to the coupling point [7] and remove cable W152.

Assembly

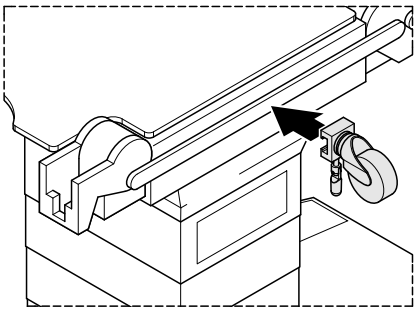
1. Restore the original cable routing.
   Route cable W152 in the table base.
2. Connect the plug of cable W152 to the small filter (1A - see circuit diagram on page 295).
3. Plug the plug at the other end of cable W152 into the socket of the coupling point (see circuit diagram on page 295).
4. Refasten cable W152 from the filter up to the coupling point.
5. Attach the cover over the coupling point on the table base (2 screws).
6. Restore the original cable routing. Check all connections on the assembly to be sure they are secure.
   Carefully insert the cover with the assembly into the table base and mount it (4 screws with washers).
7. Mount the cover above the control module (4 screws).
8. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
9. Remove the multifunction tool.
10. Remove the toothed wheel.
11. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
12. Lock operating table (brake)
13. Put on the pad.

TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

22.4 Cable W153

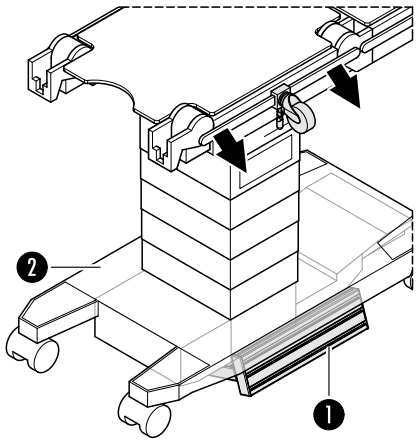
Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the left side rail [21] of the seat section.
3.

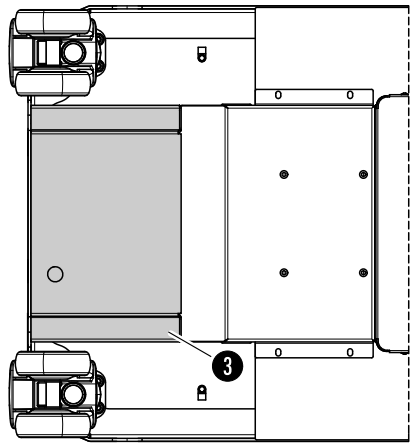
> **CAUTION**
> **Risk of material damage!**
>
> The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).
4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).



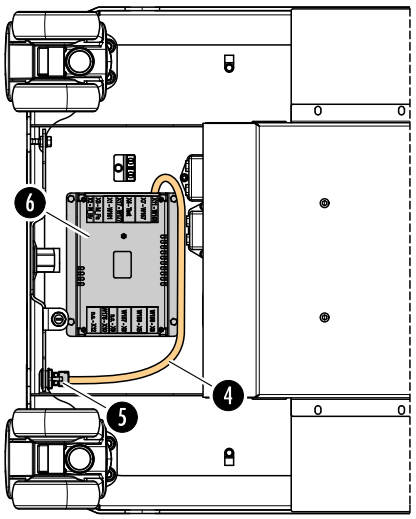
5. Slide the multifunction tool [1] mounted as a T under the table base [2].
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points down) and set it on the star wheel.

   After placing the table on its side, do not activate the hydraulics system to prevent air from seeping into the hydraulic hoses.



7. Remove the left cover [3] under the table base (4 screws).

[21] Side with the column keypad



8. Pull both plugs of cable W153 [4] from the button [5].
9. Unplug the other end of cable W153 from the control module [6].
10. Note the cable routing and attachment.
    Unfasten cable W153 [4] from the button [5] up to the control module [6] and remove cable W153.

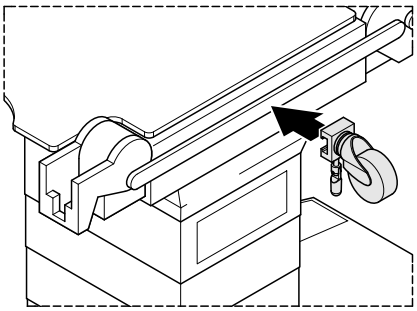
Assembly

1. Restore the original cable routing.
   Route cable W153 in the table base.
2. Insert the plug of cable W153 into the socket on the control module (see circuit diagram on page 295).
3. Plug both plugs at the other end of cable W153 into the button (see circuit diagram on page 295).
4. Refasten cable W153 from the button up to the control module.
5. Mount the cover above the control module (4 screws).
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
7. Remove the multifunction tool.
8. Remove the toothed wheel.
9. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
10. Lock operating table (brake)
11. Put on the pad.

TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

22.5 Cable W154

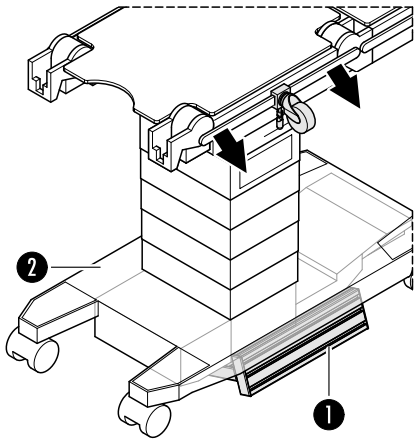
Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the left side rail [22] of the seat section.
3.

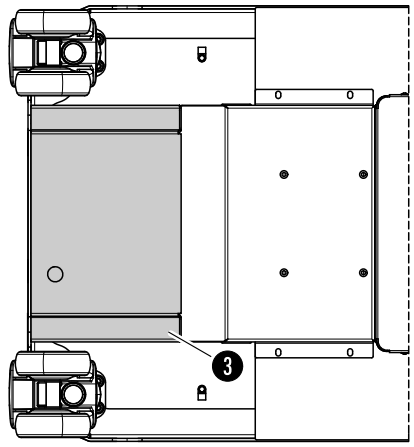
> **CAUTION**
> **Risk of material damage!**
>
> The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).
4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).



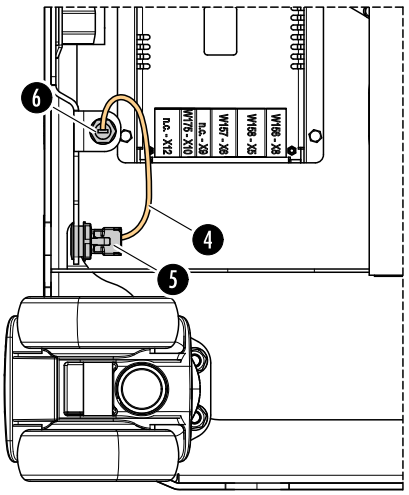
5. Slide the multifunction tool [1] mounted as a T under the table base [2].
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points down) and set it on the star wheel.

   After placing the table on its side, do not activate the hydraulics system to prevent air from seeping into the hydraulic hoses.



7. Remove the left cover [3] under the table base (4 screws).

[22] Side with the column keypad



8. Unplug cable W154 [4] from the button [5].
9. Unplug the other end of cable W154 from the fuse holder [6].
10. Note the cable routing and attachment.
    Unfasten cable W154 [4] from the button [5] up to the fuse holder [6] and remove cable W154.

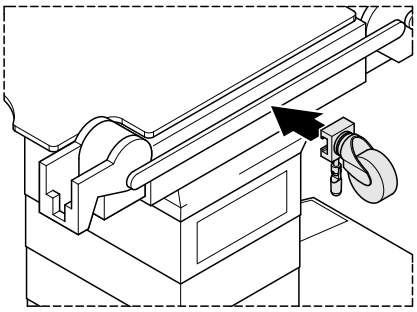
Assembly

1. Restore the original cable routing.
   Route cable W154 in the table base.
2. Plug the plug of cable W154 into the fuse holder (see circuit diagram on page 295).
3. Plug the plug at the other end of cable W154 into the button (see circuit diagram on page 295).
4. Refasten cable W154 from the button up to the fuse holder.
5. Mount the cover above the control module (4 screws).
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
7. Remove the multifunction tool.
8. Remove the toothed wheel.
9. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
10. Lock operating table (brake)
11. Put on the pad.

TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

22.6 Cable W155

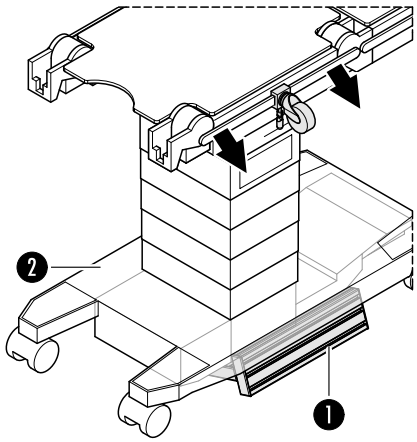
Disassembly



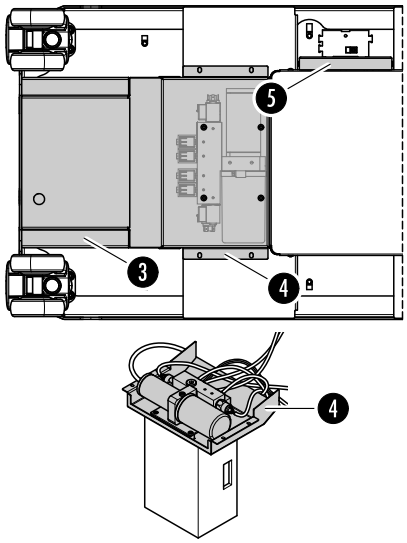
1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the left side rail [23] of the seat section.
3.

> **CAUTION**
> **Risk of material damage!**
>
> The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).
4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).

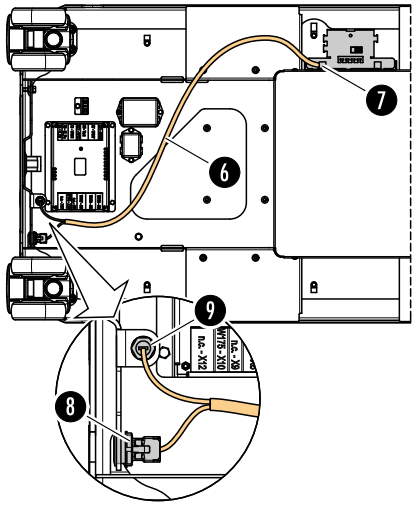


5. Slide the multifunction tool [1] mounted as a T under the table base [2].
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points down) and set it on the star wheel.
   After placing the table on its side, do not activate the hydraulics system to prevent air from seeping into the hydraulic hoses.



7. Remove the left cover [3] under the table base (4 screws).
8. Caution: the assembly is attached to the cover. Provide a suitable aid (for example a crate or carton) near the table base so the assembly can be placed on it. The cables are not long enough for the assembly to be placed on the floor.
   Remove the center cover [4] under the table base (4 screws with washers) and store it carefully.
9. Remove the cover [5] over the coupling point [7] on the side of table base (2 screws).

[23] Side with the column keypad



10. Unplug cable W155 [6] from the coupling point [7].
11. Pull plugs at the other end of cable W155 from the button [8] and the fuse holder [9].
12. Note the cable routing and attachment.
    Remove the cable attachments along cable W155 [6] from the coupling point [7] up to the button [8]/fuse holder [9] and remove cable W155.

Assembly

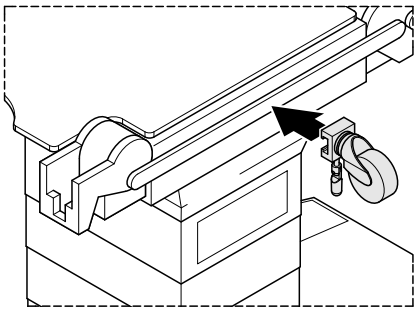
1. Restore the original cable routing.
   Route cable W155 in the table base.
2. Plug cable W155 into the button and the fuse holder (see circuit diagram on page 295).
3. Plug the plug at the other end of cable W155 into the socket of the coupling point (see circuit diagram on page 295).
4. Refasten cable W155 from the coupling point up to the button/fuse holder.
5. Attach the cover over the coupling point on the table base (2 screws).
6. Restore the original cable routing. Check all connections on the assembly to be sure they are secure.
   Carefully insert the cover with the assembly into the table base and mount it (4 screws with washers).
7. Mount the cover above the control module (4 screws).
8. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
9. Remove the multifunction tool.
10. Remove the toothed wheel.
11. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
12. Lock operating table (brake)

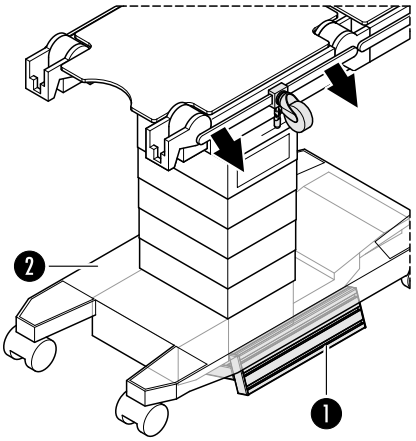
13. Put on the pad.

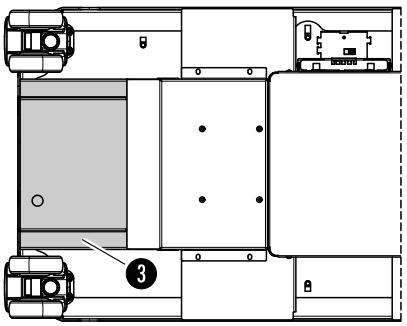
 TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

22.7 Cable W177

Disassembly





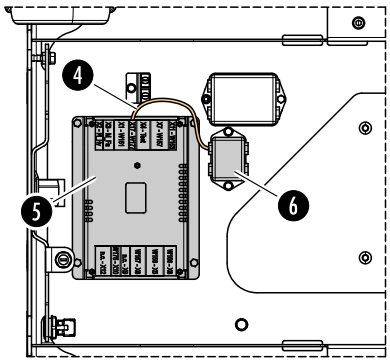


1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the left side rail [24] of the seat section.
3. **CAUTION**
   Risk of material damage!
   The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).
4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
5. Slide the multifunction tool [1] mounted as a T under the table base [2].
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points down) and set it on the star wheel.

   After placing the table on its side, do not activate the hydraulics system to prevent air from seeping into the hydraulic hoses.
7. Remove the left cover [3] under the table base (4 screws).

[24] Side with the column keypad



8. Unplug cable W177 [4] from the small filter [6] (1A).
9. Unplug the other end of cable W177 [4] from the control module [5].
10. Note the cable routing and attachment.
    Unfasten cable W177 [5] from the filter [6] up to the control module [5] and remove cable W177.

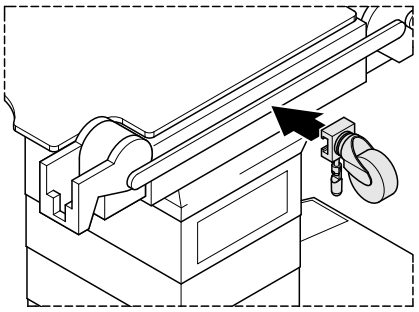
Assembly

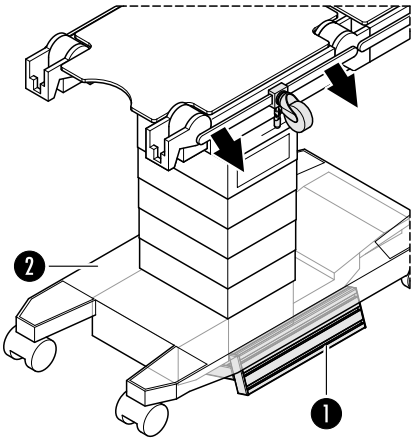
1. Restore the original cable routing.
   Route cable W177 in the table base.
2. Insert the plug of cable W177 into the socket on the control module (see circuit diagram on page 295).
3. Plug the plug at the other end of cable W177 into the small filter (1A) (see circuit diagram on page 295).
4. Refasten cable W177 from the filter up to the control module.
5. Mount the cover above the control module (4 screws).
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
7. Remove the multifunction tool.
8. Remove the toothed wheel.
9. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
10. Lock operating table (brake)
11. Put on the pad.

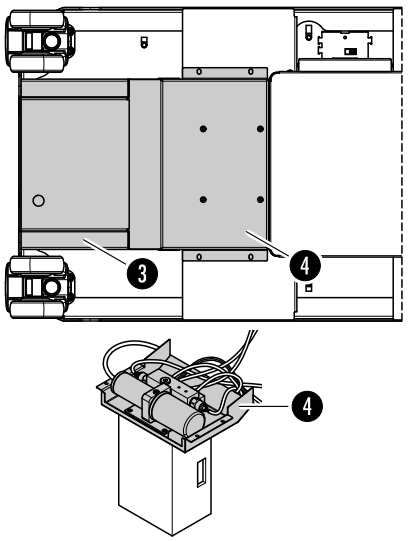
TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

22.8 Cable W156 and W158

Disassembly







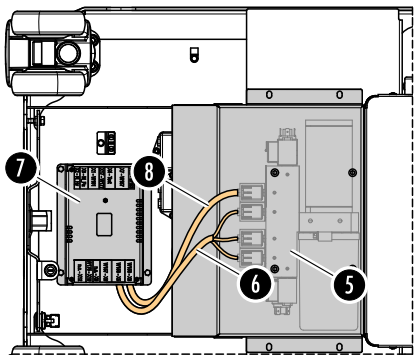
1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the left side rail [25] of the seat section.
3. **CAUTION**
   Risk of material damage!
   The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).
4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
5. Slide the multifunction tool [1] mounted as a T under the table base [2].
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points down) and set it on the star wheel.

   After placing the table on its side, do not activate the hydraulics system to prevent air from seeping into the hydraulic hoses.
7. Remove the left cover [3] under the table base (4 screws).
8. Caution: the assembly is attached to the cover. Provide a suitable aid (for example a crate or carton) near the table base so the assembly can be placed on it. The cables are not long enough for the assembly to be placed on the floor.

   Remove the center cover [4] under the table base (4 screws with washers) and store it carefully.

[25] Side with the column keypad



9. Unplug cable W156 [8]/W158 [6] from the assembly [5].
10. Unplug the other end of cable W156 [8]/W158 [6] from the control module [7].
11. Note the cable routing and attachment.
    Unfasten cable W156 [8]/W158 [6] from the assembly [5] up to the control module [7] and remove cable W156/ W158.

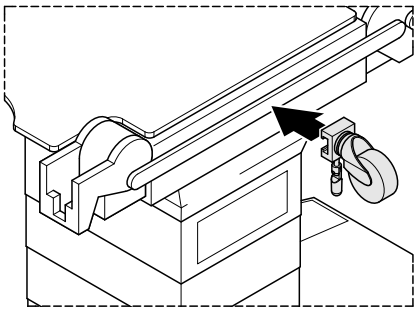
Assembly

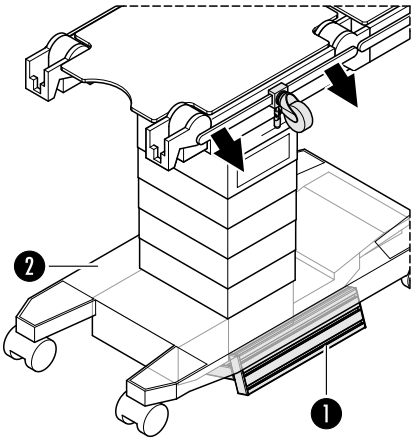
1. Restore the original cable routing.
   Route cable W156/W158 in the table base.
2. Insert the plug of cable W156/W158 into the socket on the control module (see circuit diagram on page 295).
3. Plug the plugs at the other end of cable W156/W158 into the sockets of the assembly (see circuit diagram on page 295).
4. Refasten cable W156/W158 from the assembly up to the control module.
5. Restore the original cable routing. Check all connections on the assembly to be sure they are secure.
   Carefully insert the cover with the assembly into the table base and mount it (4 screws with washers).
6. Mount the cover above the control module (4 screws).
7. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
8. Remove the multifunction tool.
9. Remove the toothed wheel.
10. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
11. Lock operating table (brake)
12. Put on the pad.

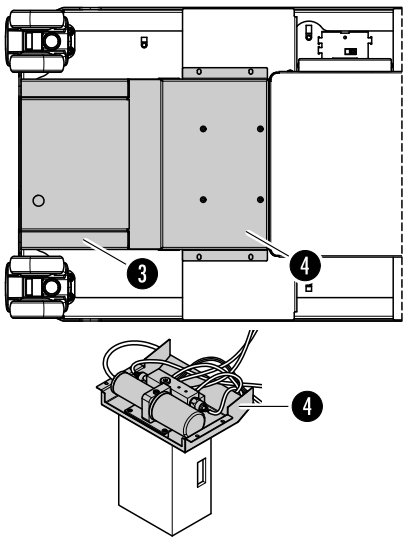
TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

22.9 Cable W157

Disassembly







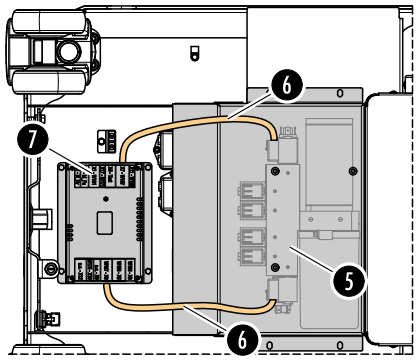
1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the left side rail [26] of the seat section.
3. **CAUTION**
   Risk of material damage!
   The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).
4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
5. Slide the multifunction tool [1] mounted as a T under the table base [2].
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points down) and set it on the star wheel.

   After placing the table on its side, do not activate the hydraulics system to prevent air from seeping into the hydraulic hoses.
7. Remove the left cover [3] under the table base (4 screws).
8. Important: the assembly is attached to the cover. Provide a suitable aid (for example a crate or carton) near the table base so the assembly can be placed on it. The cables are not long enough for the assembly to be placed on the floor.

   Remove the center cover [4] under the table base (4 screws with washers) and store it carefully.

[26] Side with the column keypad



9. Unplug cable W157 [6] from the assembly [5].
10. Unplug the other end of cable W157 [6] from the control module [7].
11. Note the cable routing and attachment.
    Unfasten cable W157 [6] from the assembly [5] up to the control module [7] and remove cable W157.

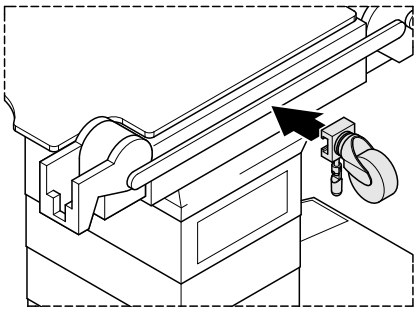
Assembly

1. Restore the original cable routing.
   Route cable W157 in the table base.
2. Plug cable W157 into the socked on the control module (see circuit diagram on page 295).
3. Plug the plugs at the other end of cable W157 into the socket of the assembly (see circuit diagram on page 295).
4. Refasten cable W157 from the assembly up to the control module.
5. Restore the original cable routing. Check all connections on the assembly to be sure they are secure.
   Carefully insert the cover with the assembly into the table base and mount it (4 screws with washers).
6. Mount the cover above the control module (4 screws).
7. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
8. Remove the multifunction tool.
9. Remove the toothed wheel.
10. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
11. Lock operating table (brake)
12. Put on the pad.

TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

22.10 Cable W175

Disassembly



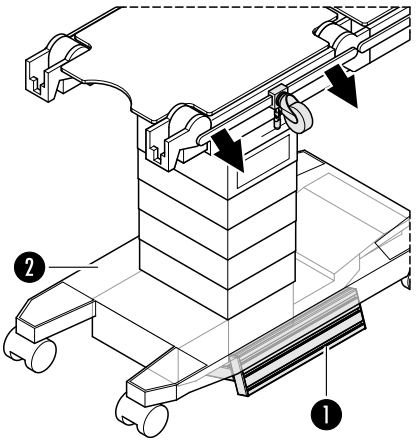
1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the left side rail [27] of the seat section.
3.

CAUTION
Risk of material damage!

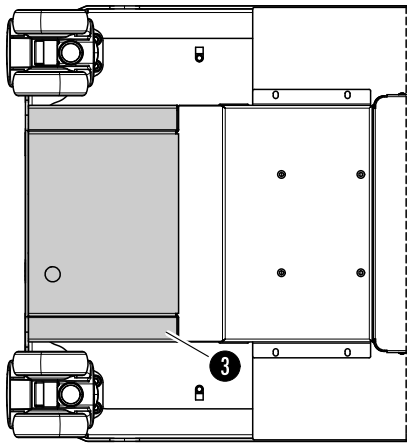
The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

Release the brake on the operating table (unlock the operating table).

4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).

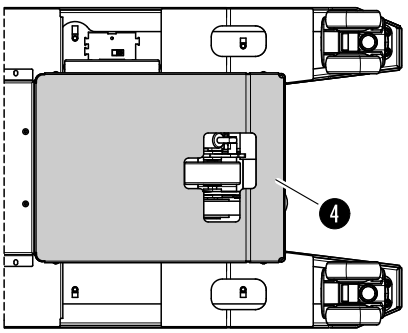


5. Slide the multifunction tool [1] mounted as a T under the table base [2].
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points down) and set it on the star wheel.
   After placing the table on its side, do not activate the hydraulics system to prevent air from seeping into the hydraulic hoses.

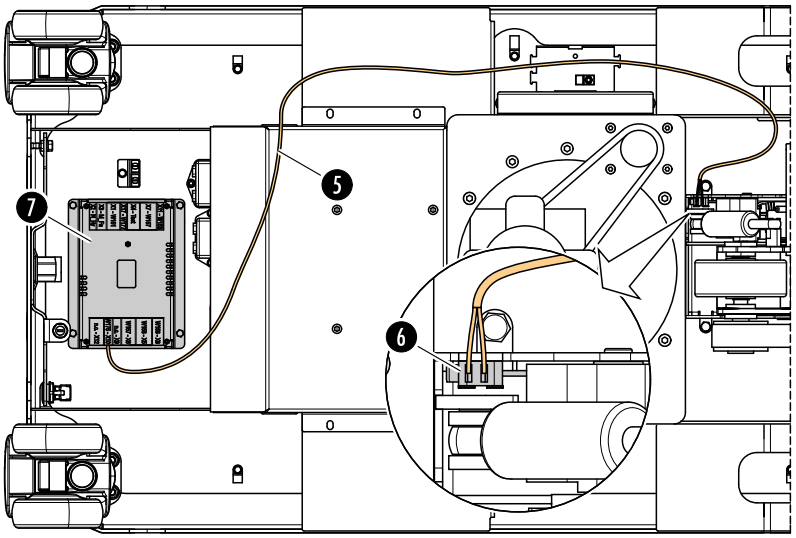


7. Remove the left cover [3] under the table base (4 screws).

[27] Side with the column keypad



8. Remove the subfloor cover [4] from the table base (4 screws).



9. Unplug cable W175 [5] from the control module [7].
10. Unplug the other end of cable W175 [5] from the switch on the drive unit [6].
11. Note the cable routing and attachment.
    Unfasten cable W175 [5] from the switch on the drive unit [6] up to the control module [7] and remove cable W175.

Assembly

1. Restore the original cable routing.
   Route cable W175 in the table base.
2. Plug cable W175 into the socket on the control module (see circuit diagram on page 295).
3. Plug the other end of cable W175 into the switch (see circuit diagram on page 295).
4. Refasten cable W175 from the control module up to the switch.
5. Mount the subfloor cover on the table base (4 screws).
6. Mount the cover above the control module (4 screws).
7. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front

of the operating table and clean it if necessary. Right the operating table with the help of a second person.

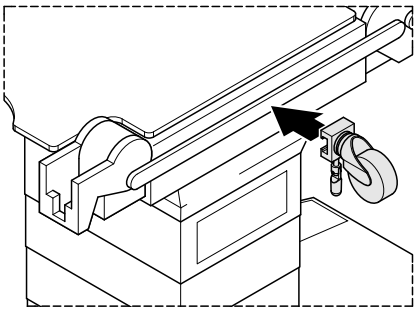
8. Remove the multifunction tool.
9. Remove the toothed wheel.
10. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
11. Lock operating table (brake)
12. Put on the pad.

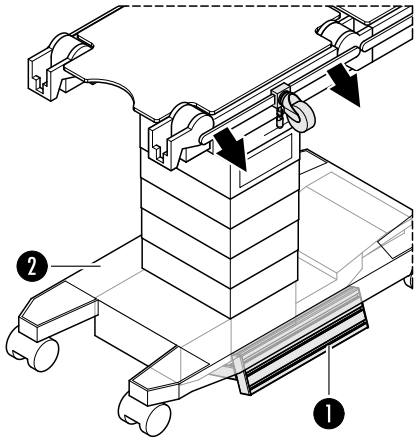
TEST

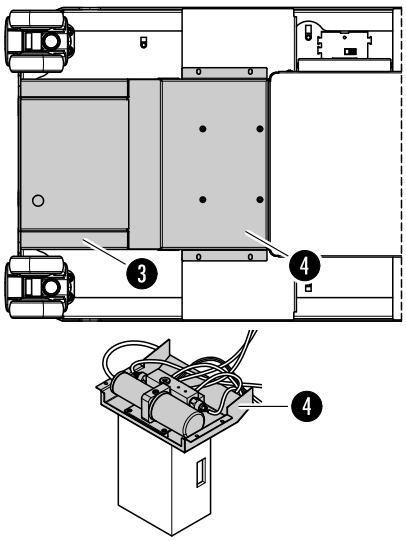
Perform recheck according to IEC 60601-1; perform function test and final check.

22.11 Cable W162

Disassembly







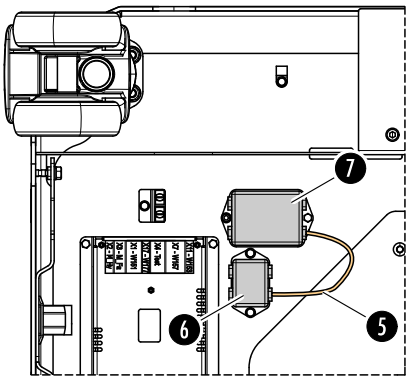
1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the left side rail [28] of the seat section.
3. **CAUTION**
   Risk of material damage!
   The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).
4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).
5. Slide the multifunction tool [1] mounted as a T under the table base [2].
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points down) and set it on the star wheel.

   After placing the table on its side, do not activate the hydraulics system to prevent air from seeping into the hydraulic hoses.
7. Remove the left cover [3] under the table base (4 screws).
8. Caution: the assembly is attached to the cover. Provide a suitable aid (for example a crate or carton) near the table base so the assembly can be placed on it. The cables are not long enough for the assembly to be placed on the floor.

   Remove the center cover [4] under the table base (4 screws with washers) and store it carefully.

[28] Side with the column keypad



9. Unplug cable W162 from the small filter [5] (1A) and the large filter [6] (12A) and remove the cable.

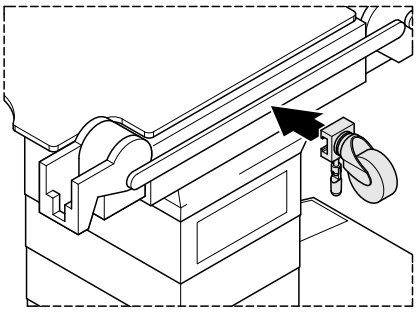
Assembly

1. Plug cable W162 into the small filter (1A) and the large filter (12A) - see circuit diagram on page 295.
2. Restore the original cable routing. Check all connections on the assembly to be sure they are secure.
   Carefully insert the cover with the assembly into the table base and mount it (4 screws with washers).
3. Mount the cover above the control module (4 screws).
4. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
5. Remove the multifunction tool.
6. Remove the toothed wheel.
7. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
8. Lock operating table (brake)
9. Put on the pad.

TEST
Perform recheck according to IEC 60601-1; perform function test and final check.

22.12 Ground wire _25

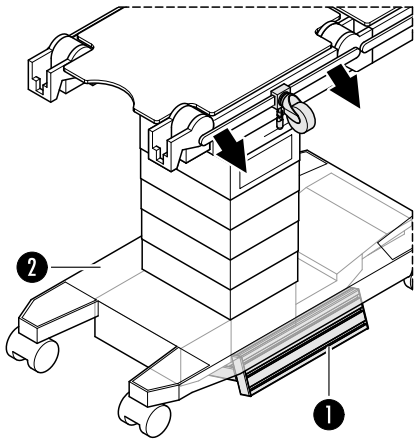
Disassembly



1. Prepare the operating table (see chapter 7 on page 29).
2. Secure the star wheel (#1800121) on the left side rail [29] of the seat section.
3.

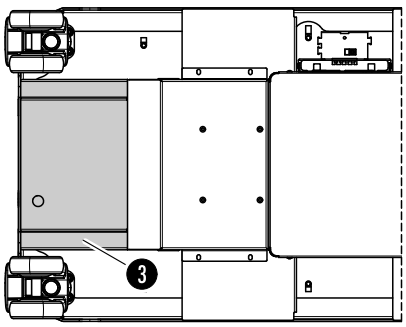
> **CAUTION**
> **Risk of material damage!**
>
> The major force required to turn the table on its side can break the extended foot locks of the brake. The operating table must be unlocked before turning it on its side.

   Release the brake on the operating table (unlock the operating table).
4. Switch off the operating table and disconnect the internal power supply (see chapter 10 on page 33).



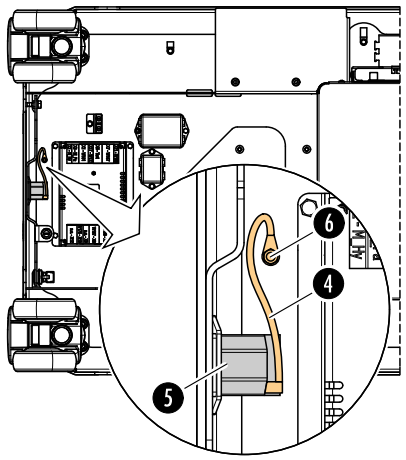
5. Slide the multifunction tool [1] mounted as a T under the table base [2].
6. Safety note: The operating table is extremely heavy; take extra care not to strain your back when turning it on its side. A second person is needed to turn the operating table on its side. With the help of another person, lay the operating table over onto the multifunction tool (side with the column keypad points down) and set it on the star wheel.

   After placing the table on its side, do not activate the hydraulics system to prevent air from seeping into the hydraulic hoses.



7. Remove the left cover [3] under the table base (4 screws).

[29] Side with the column keypad



8. Remove ground wire_25 [4] from the line power socket [5].
9. Unscrew ground wire_25 from the table base (1 screw with 2 washers).
10. Remove the ground wire.

Assembly

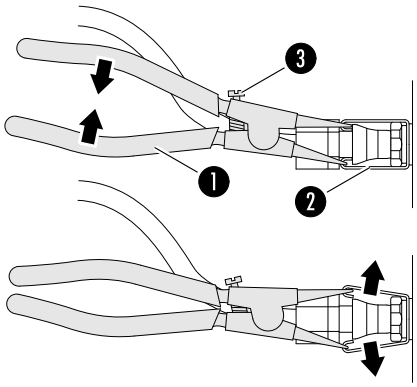
1. Plug ground wire_25 into the line power socket (see circuit diagram on page 295).
2. Attach ground wire_25 to the table´s base (1 screw with 2 washers).
3. Mount the cover above the control module (4 screws).
4. Safety note: The operating table is extremely heavy; take extra care not to strain your back while righting it. A second person is needed to right the operating table. Clear the floor in front of the operating table and clean it if necessary. Right the operating table with the help of a second person.
5. Remove the multifunction tool.
6. Remove the toothed wheel.
7. Establish the internal power supply, close the column cover and turn on the operating table (see chapter 10 on page 33).
8. Lock operating table (brake)
9. Put on the pad.

TEST

Perform recheck according to IEC 60601-1; perform function test and final check.

23 Quick-connect coupling on the assembly

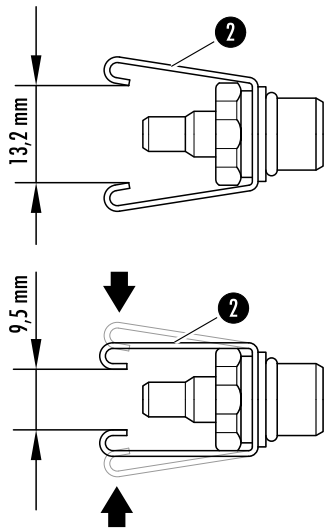
Open



The quick-connect couplings can be removed or attached only if the system is depressurized. For this reason, always release the brake on the operating table before working on the hydraulic system. If the brake cannot be released using the control unit, press the *EMERGENCY RELEASE* button on the table base. The label over the button will then have to be replaced. Important: do not place the operating table on its side with the column keypad pointing down. In this case, air would get into the hydraulic hoses when the hydraulics are activated.

Circlip pliers [1] are used to open the couplings on the assembly. The clamp [2] can be stretched too far in this process and the coupling may not lock in properly afterward. Therefore, circlip pliers with a check screw should be used to open the quick-connect couplings. The width of the opening on the pliers should be set to 13.2 mm.

Close



Always check the width of the clamp [2] opening before connecting the coupling. The distance must be 9.5 mm. If it is not, press the clamp [2] on the coupling to the opening width of 9.5 mm.

Emergency release

If there is no way to release the pressure, the quick-connect couplings can be removed in an emergency as follows:

1. Unscrew the coupling from the valve block or the hexagon on the hose by 1 or 2 turns.
2. Cover the coupling with a lint-free cloth since oil drops can spurt out. Open the quick-connect coupling and remove it.
3. Perform service work.
4. Connect the quick-connect coupling.

5. Screw the loosened coupling back on with a torque of 5 (+2) Nm.
6. Bleed the hydraulic system

24 Adjustment and calibration tasks

24.1 Adjusting the spindle

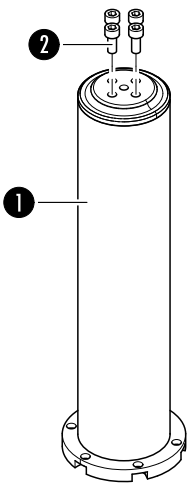
The spindle is telescoping. It consists of two interlocking spindles that rotate in or out in equal distances. Before each installation, the telescopic spindle must be adjusted so that both spindles stop at the same distance before the mechanical end stops during the lifting function.

CAUTION
Risk of material damage!

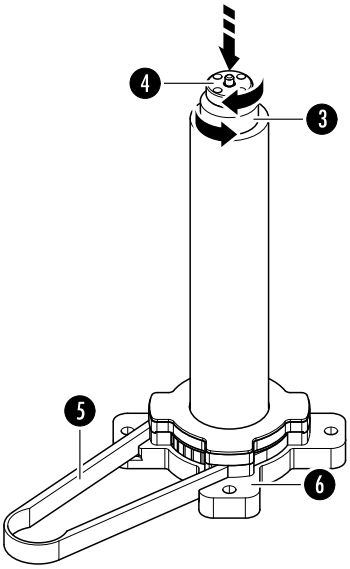
The spindle should never travel under motorized power to either of the mechanical end stops. During adjustment, the spindle is set such that it stops before reaching the mechanical end stops during the lifting function.

If the telescopic spindle is not adjusted or not adjusted correctly, the inner and outer spindles do not rotate in or out in equal distances. Serious material damage may result during the lifting function. The adjustment must be repeated.

The spindle may be adjusted only when it is removed.



1. Remove the 4 screws [2] at the top of the spindle tube [1]; remove the spindle tube [1] and set it aside.

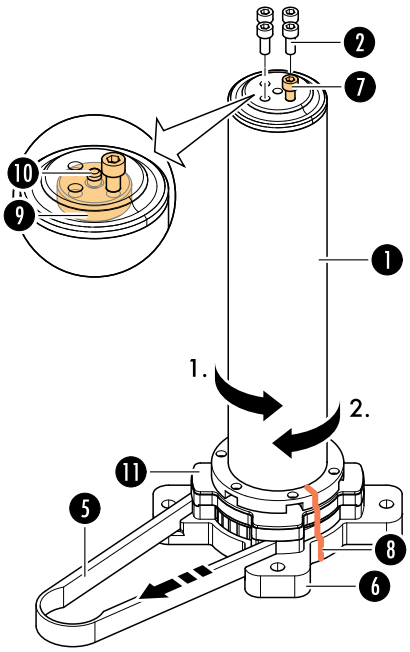


2. Manually turn both spindles, the lower spindle counterclockwise and the upper spindle [4] clockwise, to the **lower** end stop.

3. **CAUTION**
Risk of material damage to the spindle from dirt particles!

Remove any foreign bodies and dirt from between the telescopic spindle and the spindle tube so that they move smoothly in parallel.

Clean the outer spindle tube holder on the telescopic spindle and the inner installation surface of the telescopic spindle in the spindle tube.



4. Set the spindle tube [1] onto the telescopic spindle so that the 4 threaded holes in the spindle line up flush with the upper 4 boreholes in the spindle tube.

5. **CAUTION**
Danger of material damage due to improper mounting!

Rotate the auxiliary screw into the telescopic spindle by only 2 to 3 thread turns. Do not tighten!

To affix the spindle tube to the telescopic spindle, screw an auxiliary screw [7] 2 to 3 thread turns into one of the 4 threaded holes.

6. Mark [8] the position of the spindle tube [1] to the shell bearing [6] of the telescopic spindle.

7. Hold the spindle tube [1] and shell bearing [6] firmly in this position. Manually pull the toothed belt [5] clockwise until the upper end of the telescopic spindle [9] touches the spindle tube [1] from the inside. Make sure that guide pin [10] positioned in the center of the telescopic spindle goes into the spindle tube and that the spindle tube does not lift off the rubber seal [11].

8. To retain the adjustment, do not rotate spindle tube [1]! Screw in the 4 screws [2] crosswise from the top of the spindle tube [1]. Do not remove the auxiliary screw [7] until the spindle tube is attached with two screws.

9. To check the spindle's function, rotate the spindle tube [1] counterclockwise by approx. 1 turn from the mark [8]. Observe the motion of the spindle tube. If the spindle tube motion is out of round, repeat the adjustment.

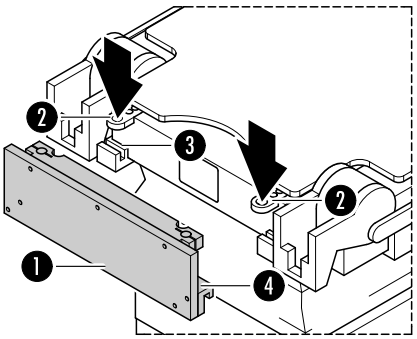
Rotate the spindle tube counterclockwise [2.] back to the mark [8].

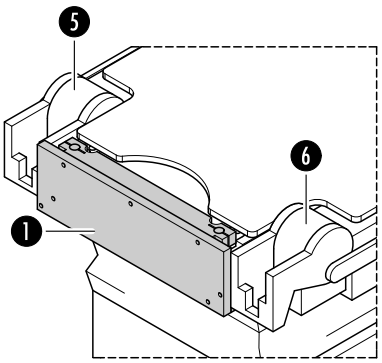
NOTE

When the telescopic spindle is installed, the spindles must be moved apart, as described, as far as the color marking. Do not twist the spindle tube in this process. If the spindle is twisted, the adjustment must be repeated.

24.2 Align the bars

The bars are connected to one another through the pad plate of the seat section and back section. After disassembly of both pad plates the left bar moves freely, and can be moved independent of the right bar. Even minimum differences between the right and left bar can prevent the table components from locking into the coupling points later. For this reason the bars have to be aligned again as soon as both pad plates are removed. Because of the minimum permissible tolerance between the right and left bar, the bars must be adjusted using an adjustment gauge. Adjustment with other tools or by eyeballing it is insufficient.

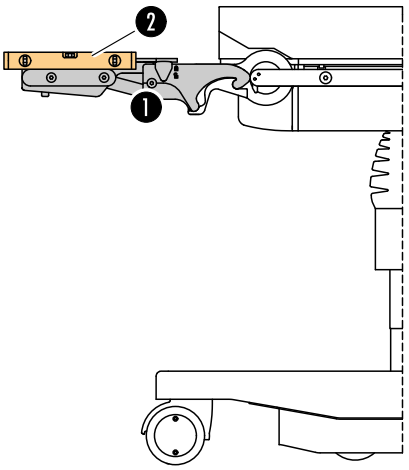




Aligning the bars:

1. Lightly fasten the pad plate to the seat section bars, All screws must be loose.
2. Move the table top longitudinally to the end position at the head end.
3. Suspend the TS7000 adjustment gauge (#1817764) [1] on the table top at the foot end (insertion opening [2] for the extension adapter). The clamps [4] on the adjustment gauge [1] are located in the lower holders [3] on the table top.
4. Carefully move the table top longitudinally toward the foot end until the right bar [5] hits the adjustment gauge [1].
5. Carefully slide the left bar [6] to the mechanical end stop on the adjustment gauge [1].
6. Tighten the pad plate screws. The position of the bars is set.
7. Install the pad plate on the back section bar.
8. Remove the adjustment gauge.

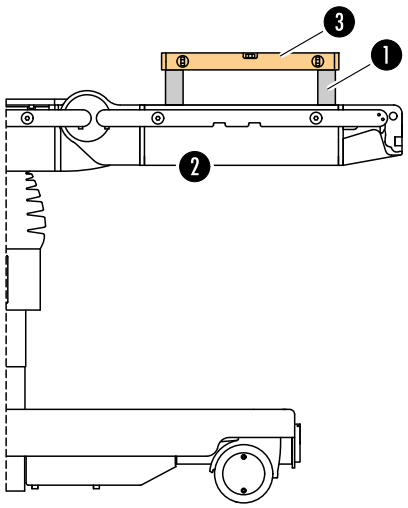
24.3 Calibrate leg section motor



The motor level position is set using the CAN test center. Follow the software description from the CAN test center.

1. Establish a communication connection to the CAN test center (PC).
2. Attach the leg section to the coupling point it.
3. Place a spirit level on the side rail of the leg section.
4. Use the joint to move the leg section to the horizontal position.
5. On the "Target value" task card, press the "Set values" button for "Position offset".
6. Reset (restart) the drive.
7. Check the end positions of the leg section.
8. Disconnect the operating table.

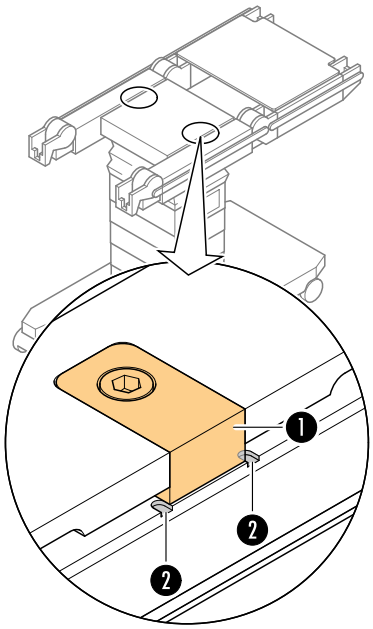
24.4 Calibrate back section motor



The motor level position is set using the CAN test center. Follow the software description from the CAN test center.

1. Establish a communication connection to the CAN test center (PC).
2. Screw two overlays (#1525777) into the pad plate attachment holes (back section bar) and position a spirit level.
3. Move the back section bar to the horizontal position.
4. On the "Target value" task card, press the "Set values" button for "Position offset".
5. Reset (restart) the drive.
6. Check the end positions of the back section.
7. Close the connection to the operating table.

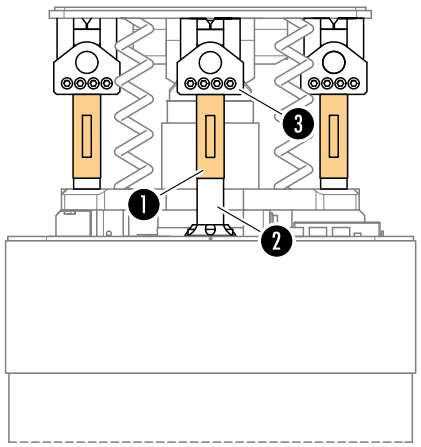
24.5 Calibrate longitudinal travel motor



The motor level position is set using the CAN test center. Follow the software description from the CAN test center.

1. Establish a communication connection to the CAN test center (PC).
2. Remove the energy chain (chain connection) from the center box (2 screws) so that the marking on the bar is visible.
3. Move the table top at a slow speed until the end stop [1] on the center box is centered between the markings [2] on the bar.
4. On the "Target value" task card, press the "Set values" button for "Position offset".
5. Reset (restart) the drive.
6. Check the end positions of the table top.
7. Close the connection to the operating table.
8. Attach the energy chain (chain connection) to the center box (2 screws).

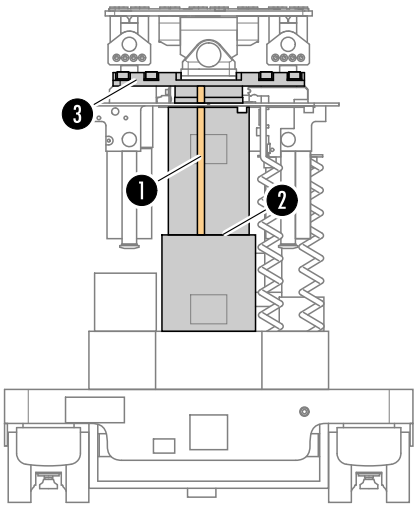
24.6 Calibrate tilt / Trendelenburg motor



The motor level position is set using the CAN test center. Follow the software description from the CAN test center.

1. Establish a communication connection to the CAN test center (PC).
2. Open the bellows and secure from above so that the spindle of the drive is accessible.
3. Place the gauge #1525774 [1] on the socket [2] of the spindle, and slowly move the motor downward until the bearing plate [3] is at the upper end of the gauge. If needed, raise the motor upward a bit so that the gauge can be inserted. Important: do not travel to the mechanical end stop.
4. On the "Target value" task card, press the "Set values" button for "Position offset".
5. Reset (restart) the drive.
6. Check the end positions of the table top.
7. Close the connection to the operating table.
8. Close the bellows.

24.7 Calibrate lift motor



The motor level position is set using the CAN test center. Follow the software description from the CAN test center.

1. Establish a communication connection to the CAN test center (PC).
2. Open the bellows and secure above.
3. Open top column covers and guide downward.
4. Place the gauge #1729967 [1] on the lowest guide block [2], and slowly move the column downward until the suspension plate [3] is at the upper end of the gauge. If needed, raise the column upward a bit so that the gauge can be inserted. Important: do not travel to the mechanical end stop.
5. On the "Target value" task card, press the "Set values" button for "Position offset".
6. Reset (restart) the drive.
7. Check the end positions of the table top.
8. Close the connection to the operating table.

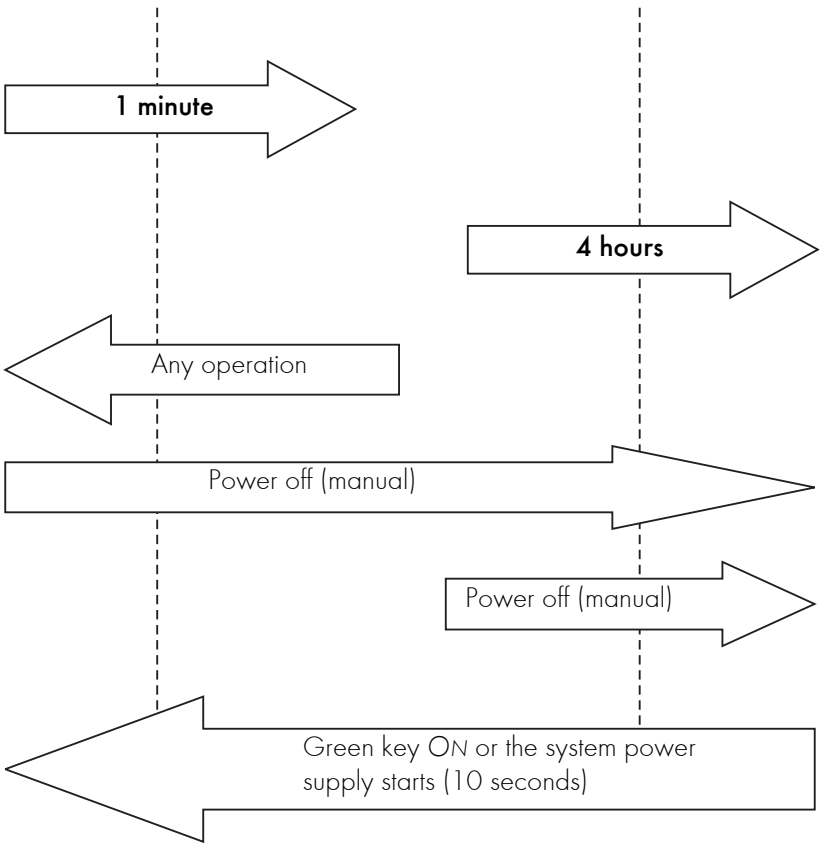
25 Control units

Repairs on the control units are not performed on site by the customer. The unit is replaced completely. Replacement units are available from Technical Service. Package the defective unit securely and send it back to Trumpf Medical.

26 Technical assistance

26.1 Operating conditions in battery-operated mode

On	Standby	Off
Press the ON key on the column keypad.	Enters Standby automatically after being ON for 1 minute	Press and hold the OFF key on the column keypad for longer than 2 seconds
Operation using the function keys	Operation using the function keys (with time delay)	No operation (not until the operating table is turned on using the ON key)
Control components and motors ON	Control components ON, motors OFF	All control components OFF, motors OFF
250 mA + N x 35 mA *1 (no movement)	250 mA	500 µA



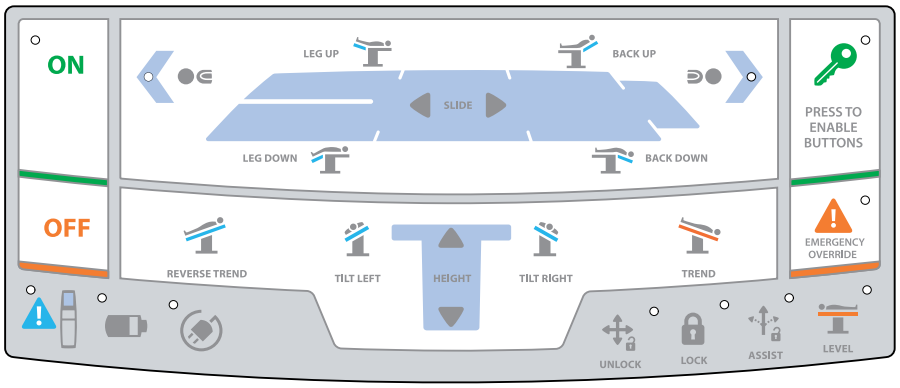
*1 N is the number of motors in the system

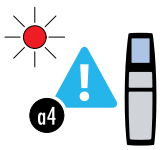
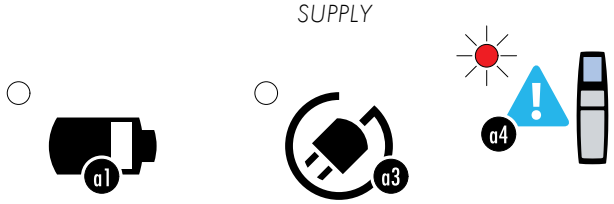
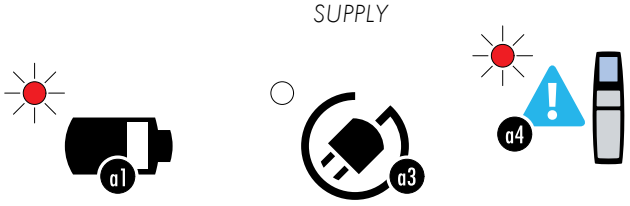
26.2 Audio signals operating status

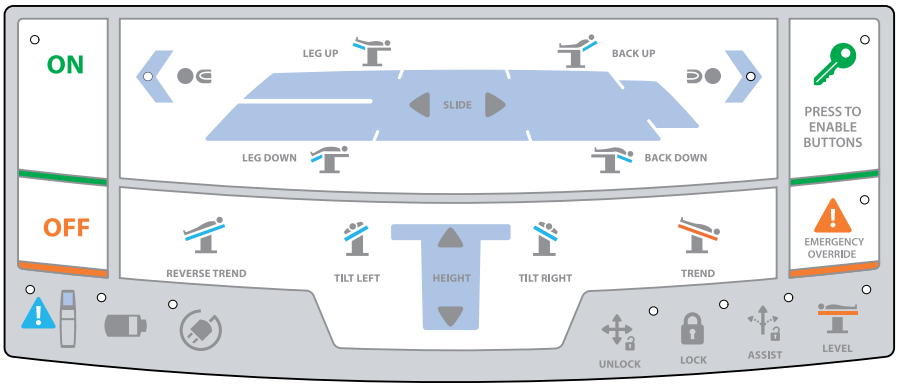
Various acoustic signals sound at operating table in conjunction with specific operating procedures or states.

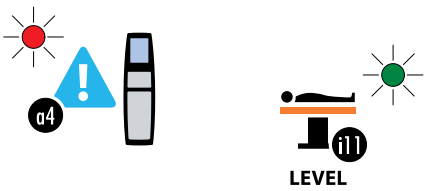
Action	Description of acoustic signal
Switch on the operating table	Ascending tone sequence
Switch off the operating table	Descending tone sequence
End or level position of selected adjustment range reached	Single tone
Confirmation of operating procedure, e.g.: – Key lock canceled – Level position reached	Double tone
– Processes at table's base (movement, locking/unlocking)	Periodic single tone During movement the single tone repeats at intervals of a few seconds.
Operating table requires charging.	2 pulsing tone sequences intermittently repeating (at an interval of several minutes - battery tone)
Error	Shrill triple tone (error tone)
Warning, e.g.: – Leg sections move together during single joint adjustment – Emergency mode	Recurring high-pitched single tone (warning tone) During movement the warning tone sounds continuously at intervals of a few seconds.

26.3 Visual error signals



Displays	Meaning
FUNCTION TEST  Lights red	Error on the operating table. The last 10 messages can be displayed on the remote control. Evaluation possible using the event log (CAN test center). All messages are listed in the text file.
BATTERY STATUS + *EXTERNAL POWER SUPPLY* *FUNCTION TEST*  Not illuminated Not illuminated Lights red	Operating table cannot be switched off. Communication with the power supply unit is disrupted. The operating table must be restarted using the reset switch.
BATTERY STATUS + *EXTERNAL POWER SUPPLY* *FUNCTION TEST*  Flashes red Not illuminated Lights red	Operating table cannot be switched off. Communication with the battery is disrupted. The operating table must be restarted using the reset switch.



Displays	Meaning
FUNCTION TEST + *LEVEL POSITION*  Lights red Flashes green	Not all components of the operating table system have moved to the level position Leveling faulty

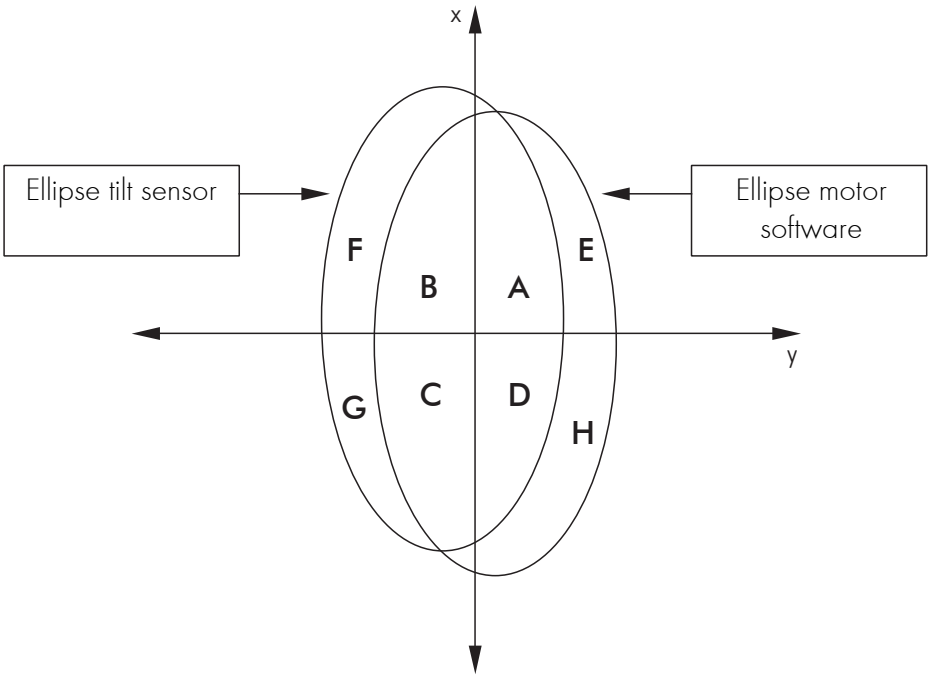
26.4 Status display on the battery LED

Battery capacity [C]	*BATTERY STATUS* optical display 	Acoustic signal	Meaning
1. Battery operation (external power supply is not connected.)			
100 %	Lights green and stays lit	No	Battery status is OK. Battery cannot be charged because capacity is sufficient.
> 80 %	Lights green and stays lit	No	
< 80 %	Lights green and stays lit	No	Battery status is OK. Battery can be charged.
< 40 %	Lights red and stays lit.	Warning tone every 360 seconds	The battery capacity is low, but the electrical functions are executed without limitation. The display of the remote control also shows a message.
< 25 %	Flashes red	Warning tone every 120 seconds	The battery capacity is critical, and the electrical functions are limited. The display of the remote control also shows a message.
< 10 %	Flashes red	Constant warning tone	Battery is empty and operating table will automatically turn off after 30 seconds. The display of the remote control also shows a message.
2. Operating table is connected to external power supply and is in standby mode (charging only in standby mode). Important: during operation (selection of function) the display lights as described for battery operation (see 1. in the table).			
> 80 %	Lights green and stays lit	No	The battery is fully charged. Once charging is complete, the charging current is reduced to a maintenance charging current. The maintenance charging current will not damage the batteries.
< 80 %	Flashes green	No	The battery is charging.

Operating range of the batteries

C < 10 % – non-usable range of the battery

26.5 Monitoring tilt and Trendelenburg position angles



X	Axis of Trendelenburg position in degrees
Y	Axis of tilt in degrees
A, B, C, D	Ranges where Trendelenburg and tilt positions may move freely
F, G	Ranges where Trendelenburg and tilt positions are blocked (by software)
E, H	Ranges where Trendelenburg and tilt positions are blocked (by tilt sensor)

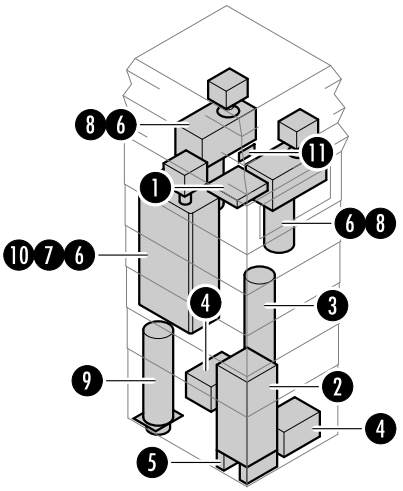
If there is a difference between the motor control and tilt sensor angle values of more than 5 degrees in normal operation and 2 degrees in the level position motion, the tilting and Trendelenburg function is restricted. If the angle values of the tilt sensor are outside of the specified range, only level position movement of the tilt and Trendelenburg position is possible. This serves to protect the mechanisms.

Usually, both ellipses are superimposed precisely on each other. This prevents any restriction in the tilt and Trendelenburg ranges. Full range of motion is possible in both directions (30 degree tilt, 45 degree Trendelenburg position).

27 Components with serial numbers

The following TruSystem 7000 operating table components or assemblies can be clearly identified by their serial numbers:

Column

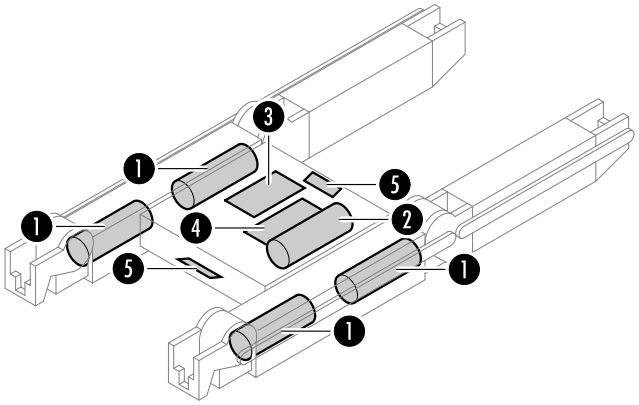


Item	Material description	Mat. no.
1	LP column controller	1755972
2	Power supply replacement unit	1784821
3	Telescopic spindle TS7500	1451313
4	Rechargeable lithium ion battery 40.7 V/ 4.8 Ah	1533137
5	Power supply unit stand V2 TSSM	1784822
	Guide kit TS7500	1562543
	Guide, complete TS7000	1822312
	Outer guide VA TS	1582304
6	Drive TS7500 additional lift V	1649893
7	Trend spindle TR 20x2.25, complete	1657866
8	Tilt spindle TR 20x2.25, complete	1657901
9	TS7000 TP SE drive	1681171
10	Sensor cardan joint TR v1	1661842
	Column TS7000 electr.	1660184
11	PCB ISM module TruSystem *1	1795908
	PCB ISM module TruSystem ANY *2	2031712

*1 The holder is fitted on the underside of the mounting plate (left side) in the ISM module.

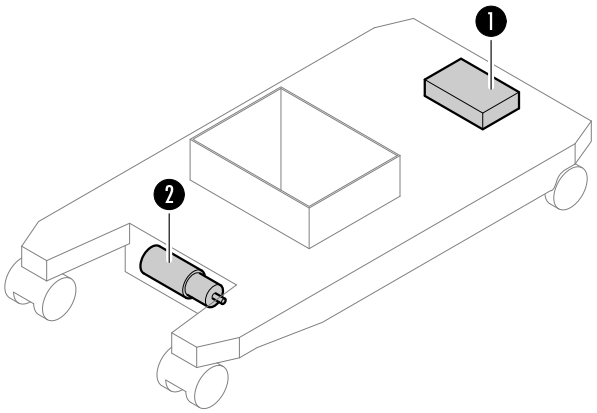
*2 The holder is fitted on the top of the suspension plate (left side) in the ISM module.

Table top



Item	Material description	Mat. no.
1	TS7500 TP SE drive	1555148
2	TS7500 LV tilt SE drive	1555231
3	LP Communication controller	1669408
	phyCARD-M	1638326
	LP Baseboard V2	1638327
4	LP Motor controller	1763666
5	PCB compl. interface, Endolight SMD	1785536

Table base



Item	Material description	Mat. no.
1	Table base control module, complete	1658737
2	Drive unit gear motor	1658909

Service report

On every part listed there is a rating plate containing the serial number. Exception: The serial number on the telescopic spindle is located at the front on the guide column between the lift motor and power supply unit.

When replacing one of the parts listed here, the serial numbers of the removed and new parts must be reported to Trumpf Medical using the "Service Report" form. Fill out the "Service Report" form completely and send it to Technical Service via fax or e-mail. This information is required for future customer issues to be handled correctly. Important: assemblies can contain multiple components that require a serial number. In this case, all the serial numbers must be entered into the "Service Report" form. For example, when exchanging the Trendelenburg drive assembly, the serial numbers for the spindle, power sensor and motor are required. The "Service Report" form can be downloaded from the Trumpf Medical online information system. The password for access to the online information system is available from the Service Center. Upon completion of work, package the defective part securely and send it back to Trumpf Medical.

28 Fuse overview

Mat. no.	Product name	Capacity	Characteristics	Type
#1428460	F1	10 A	Slow-blow	5x20
#1428460	F2	10 A	Slow-blow	5x20
#0455653	F3	2.5 A	Slow-blow	5x20

29 Torque overview

A certain level of torque is needed to tighten the screws or nuts with a certain level of force. Therefore, we have specified the torque needed for the connection points.

Trumpf Medical has determined the following torque values based on the guideline VDI 2230 for stainless steel screws as per the valid standard A2. The calculations are based on strength class 70 screws.

Threads	Torque for stainless steel screws - A2 $M_{A/F70}$ (Nm)
M4	2.1
M5	4.1
M6	7.0
M8	17.5
M10	34.3
M12	59.5
M14	95
M16	147

30 Maintenance and repair

The following maintenance intervals have been established for the operating table:

- First maintenance in the 2nd year of operation
- Second maintenance in the 4th year of operation
- Annual maintenance from the 5th year of operation

Please contact Technical Service at Trumpf Medical or an authorized service partner for maintenance and service.

Maintenance work must be performed using the maintenance log, taking into account the list of components subject to wear (see chapter 30.2 on page 283) and the lubrication schedule (chapter 31 on page 284). The "Maintenance Log" can be downloaded from the Trumpf Medical online information system. The password for access to the online information system is available from the Service Center.
After completing maintenance work, fax or email a copy of the completed maintenance log to Technical Service.

30.1 Maintenance log content

This section will give you a brief overview of what is included in the maintenance work performed by Technical Service, depending on the device-specific checklists.

Entire system using the service software

1. Read-out of system details
2. Verification of all audible and visual signals
3. Check of the remote control software and hardware

Charging device

1. Visual inspection of housing parts for any damage
2. Visual inspection of pictograms for any damage and whether they are easy to read
3. Verification of charge manager

Remote control

1. Visual inspection of housing parts for any damage
2. Visual inspection of pictograms for any damage and whether they are easy to read
3. Verification that all control elements are functioning
4. Visual inspection of remote control cable connection for any damage

5. Check of battery and charge manager for the wireless remote control

Electrical system

1. Verification that all output and operating elements are functioning
2. Verification of all sensors in the system
3. Check of brake function
4. Visual inspection of the keys and displays for any damage
5. Verification that all control elements are functioning
6. Check of column battery(ies) and charge manager
7. Check of all column cables for any mechanical tension and damage
8. Verification of all conductive and zero-voltage parts of the operating table for electrical safety
9. Verification of the functionality and electrical safety of all electrical coupling elements

Mechanical system

1. Visual inspection of all mechanical components of the operating table column
2. Visual inspection of pictograms for any damage and whether they are easy to read
3. Verification of column covers
4. Verification of bellows
5. Verification of all seals and toothed belts in the operating table
6. Verification of all mechanical coupling elements
7. Verification that ratchet braces are functioning

30.2 List of high-wear parts

Important: note assemblies that require a serial number in chapter 27 on page 276.

All spare and wear parts are to be replaced as part of the regular maintenance work and if otherwise necessary.

With proper use, care and maintenance of the operating table, the following parts are declared to be high-wear parts.

High-wear part	Replacement if defective
Table top	
Cable W166	•
Cable W167	•
Column	
Batteries	•
Spiral cable, rear, W104	•
Spiral cable, front, W164	•
Spiral cable W173	•
Table base	
Hydraulic hoses	•

31 Lubrication schedule

31.1 Column

No.	Lubrication point	Lubricant	Application	Relubrication interval
1	Guide	THERMOPLEX® ALN 250 EP low-viscosity gear grease; #1483750	With brush	2 years
2	Bushings, cardan	TURMOPLEX® L220; #4150047	With brush	Initial lubrication only
3	Drives, tilt/ Trendelenburg spindle	TURMOPLEX® L220; #4150047	With brush	Initial lubrication
		PROFI-TURBO-GREASE®; #4150050	Spray	2 years
4	Drives, tilt/ Trendelenburg angular contact needle roller bearings	TURMOGREASE® LI 802 EP special grease; #1473385	With brush	Initial lubrication
			with grease gun (#1259074 with pointed nozzle) approx 3-4 strokes	2 years
5	Telescopic spindle		Pre-lubricated by supplier	Initial lubrication only

31.2 Table top

No.	Lubrication point	Lubricant	Application	Relubrication interval
1	Worm gears, table top joints (toothed gears, bearings, seals)	ISOFLEX TOPAS NCA 5051; #4150051	With brush	Initial lubrication only
2	Linear guide, longitudinal travel	TURMOGREASE® LC252; #1355874	with grease gun (#1259074 with pointed nozzle) approx. 3-4 strokes per lubrication nipple (4) until grease emerges from channel, then move into longitudinal travel	2 years
3	Gears, longitudinal travel	ISOFLEX TOPAS NCA 5051; #4150051	With brush	Initial lubrication only

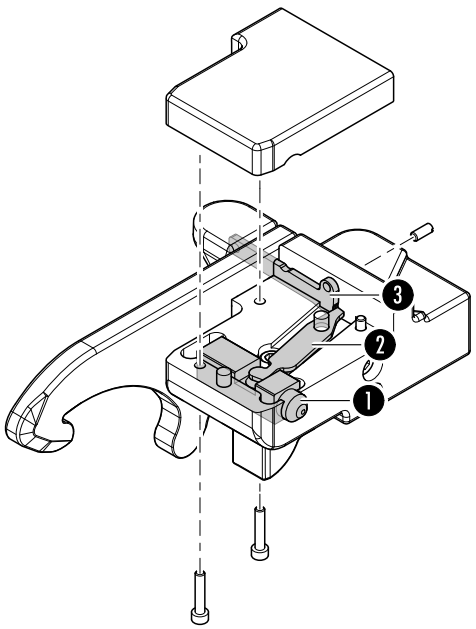
No.	Lubrication point	Lubricant	Application	Relubrication interval
4	Spur gearing, longitudinal displacement, incl. spur gear axle with sealing ring	TURMOPLEX® L220; #4150047	With brush	Initial lubrication only
5	Toothed rack, longitudinal travel	TURMOPLEX® L220; #4150047	With brush	2 years

31.3 Table base

Table base requires no lubrication.

31.4 Components (leg section for example)

No.	Lubrication point	Lubricant	Application	Relubrication interval
1	Locking pin [1], steering lever [2], release lever [3]	PROFI-TURBO-GREASE®; #4150050	Spray	2 years



32 Troubleshooting

Error	Possible cause	Correction
Operation via the column keyboard not possible. No indicators light on the column keypad.	Batteries exhausted.	Connect to power using line power cable.
	Column keypad is not connected correctly to the circuit board.	Check cable position and connections and establish connections as needed.
	Column controller is defective.	Check the column controller through the CAN test center. Replace column controller.
	The column keypad is defective.	Replace column keypad.
Cannot operate via remote control	The connection socket is not connected correctly to the motor controller circuit board.	Check cable position and connections and establish connections as needed.
	Connector socket is defective.	Connect the remote control to another connection socket and test operation. Replace connector socket.
	Motor controller circuit board is defective.	Check the motor controller circuit board using the CAN test center. Replace motor controller circuit board.
	Remote control is defective.	Switch on the operating table and activate the remote control. The display must light after 10 seconds. If not, replace the remote control.
Audible signals do not sound.	The loudspeaker is not connected correctly to the column controller.	Check cable position and connections and establish connections as needed.
	Column controller is defective.	Check the column controller through the CAN test center. Replace column controller.
	Speaker is defective.	Replace speaker.

Error	Possible cause	Correction
Operation using line power connection not possible.	Fuse is defective.	Check and replace the line power input fuse.
	Power supply unit is defective.	Check the input / output voltage on the power supply unit. Replace power supply unit.
	Power cable is defective.	Check the power cable for visible damage and replace.
No movement during operating table function.		
No movement during any operating table functions.	The cables are not connected correctly to the power supply unit.	Check cable position and connections and establish connections as needed.
	Power supply unit is defective.	Check the power supply unit through the CAN test center. Replace power supply unit.
	The cables are not connected correctly to the motor controller circuit board.	Check cable position and connections and establish connections as needed.
	Motor controller circuit board is defective.	Check the motor controller circuit board using the CAN test center. Check the power supply unit voltage on the motor controller circuit board. Replace motor controller circuit board.

Error	Possible cause	Correction
No movement during a motor-driven operating table function. Motor not running (no audible motor noises).	Motor is not or incorrectly addressed	Set the motor parameters using the CAN test center. Update software.
	Power supply to motor interrupted.	Check cable position and connections and establish connections as needed.
	Motor is defective.	Check the motor through the CAN test center. If voltage has been applied and communication with the motor is possible, the motor is defective. Replace motor.
		Check the motor through the CAN test center. If communication with the motor is not possible, the motor is defective. Replace motor.
	Spindle is stuck.	Replace spindle.
	OR sensor is active without OR adapter. As a result, longitudinal travel can be blocked.	Check the OR sensor through the CAN test center. If the longitudinal travel motor can operate through the CAN test center, the OR sensor is defective. Replace OR sensor.
No movement during a motor-driven operating table function. Motor is running (audible motor noises).	Toothed belt tension is incorrect.	Tighten the toothed belt.
	Spindle or toothed belt is defective.	Check the spindle or toothed belt for visible damage and replace.
No movement during tilt and Trendelenburg functions.	Column controller is defective.	Check the column controller through the CAN test center. Replace column controller.
No synchronous drive movement.	Motor values are incorrect. Angle deviation between both drives. If there is a difference greater than 3° the drives cannot run synchronously.	Use the CAN test center to move the drives until the difference in position is less than 3°. Set the motor parameters using the CAN test center. Update software.
		Replace gear.

Error	Possible cause	Correction
Incorrect movement during operating table function.		
Operating table function does not move to the end position or moves in the opposite direction.	The motor position values are incorrect, and therefore the end positions are wrong.	Calibrate the motor (CAN test center) and update the software.
	Tilt sensor is incorrect or defective. For this reason, the tilt angle for the tilt and Trendelenburg function is limited.	Calibrate the tilt sensor on the motor controller circuit board (CAN test center). Make sure that the operating table is on a level floor.
		Replace motor controller circuit board.
Mechanical noises during operating table function.	No lubricant.	Check the lubricant according to the lubrication schedule and apply where necessary.
	Toothed belt tension is incorrect.	Tighten the toothed belt.
	Spindle or toothed belt not OK.	Measure power consumption through the CAN test center. Increased power consumption, especially with the *DOWN* function indicates a defect in the spindle or telescope. Check the spindle or toothed belt for visible damage and replace.
	Motor (gears / brake) is defective.	Replace motor.
Problems charging the operating table.		
Operating table cannot be charged. The *BATTERY STATE* indicator on the column keyboard flashes alternately between red and green.	Communication error between the battery and power supply unit.	Unplug the operating table from line power and then plug it back in.
	Battery or power supply unit is defective.	Check the battery or power supply unit through the CAN test center. Replace battery or power supply unit.
Operating table cannot be charged. The *BATTERY STATE* and *EXTERNAL POWER SUPPLY* indicators on the column keypad do not light.	The power supply unit or communication to the power supply unit is faulty.	Restart the operating table using the reset switch.
	Power supply unit is defective.	Check the power supply unit through the CAN test center. Replace power supply unit.

Error	Possible cause	Correction
Operating table is fully discharged after a short time.	Battery is too cold.	Temper the battery. The battery temperature must be higher than 5 °C so that the battery can charge.
	Battery is defective.	Check the battery voltage through the CAN test center. Replace the battery if the battery voltage is less than 28 V.
	Fuse is defective.	Check and replace the line power input fuse.
	Power supply unit is defective.	Check the power supply unit charging voltage. Replace power supply unit.
Table components		
The table component does not lock into the operating table coupling point.	Bars are not aligned with one another.	Align the bars.
	Table component locking mechanism is defective.	Check and repair the locking mechanism on the table component.
	No lubricant.	Check the lubricant on the locking mechanism according to the lubrication schedule and apply where necessary.

33 Functional overview of electrical components

Component	Function
Table top	
Motor controller (MR)	– Central OR table control – Connection of control devices – Controls the motors – Monitors the collision limits – Controls various operating states – ARM7/ARM Cortex M3 controller
Communications controller (KR)	– Provides the interfaces for communication with the OR table system (Ethernet, USB host) – Controls the update of the OR table components – Stores error logs – Embedded Linux module
CAN distributor circuit board (center box, left and right bars)	Connects the power supply and the CAN BUS with the motor controller
Longitudinal travel motor	– Provides longitudinal movement of the operating table top – Brushless DC motor with CAN bus interface – Includes absolute value measurement system for software end positions
Motor for right and left leg section	– Provides upward / downward movement of leg section – Brushless DC motor with CAN bus interface – Integrated control and monitoring of synchronous operation – Includes absolute value measurement system for software end positions
Proximity switch (sensors in the leg section joints)	Detects a docked component connected to the exterior coupling points of the leg and back sections
Remote control unit socket (head and foot end)	Connector socket for the wired remote control
OR sensor	– Detects a docked extension adapter – Reed sensor
Endolight interface circuit board *1	– IR receiver / transmitter – Connector socket for the wired remote control

Component	Function
Column	
Column controller (SC)	– Base for connecting motors for tilt left, tilt right and Trendelenburg (additional lift) – Converts the input signals of the column keypad into visual and audio signals – Ensures the basic operating functions of the operating table in emergency mode – Plays MP3, WAV and Midi files – Signals and LED displays can be configured and assigned to particular system messages
Column keypad	– Operating keypad on the operating table column
Column keypad adapter	– Base for column keypad electrical connections – Coupling point to column controller
Speaker	Playback of audio signals
Tilt left motor	– Tilts the column to the left and right sides – Additional lift height of column – Brushless DC motor with CAN bus interface – Integrated tripod functionality ("additional lift" virtual motor) – Includes absolute value measurement system for software end positions
Tilt right motor	– Tilts the operating table column right and left – Additional lift height of column – Brushless DC motor with CAN bus interface – Integrated tripod functionality ("additional lift" virtual motor) – Includes absolute value measurement system for software end positions
Trendelenburg motor	– Tilts the operating table towards the head or foot end – Additional lift height of column – Brushless DC motor with CAN bus interface – Integrated tripod functionality ("additional lift" virtual motor) – Includes absolute value measurement system for software end positions
Battery (2x)	– Provides autonomous supply of power – Lithium ion battery, 40.7 V / 4.8 Ah – Integrated protective circuitry – Records statistical battery data

Component	Function
Power supply (NT)	– Supplies electrical power to all OR table components – Includes management of battery charging – Switching power supply with wide-range input from 100-230 V at 50-60 Hz and from 230-240 V at 50 Hz – Parameters of charging unit can be configured for 2 independent channels – Switchable voltage paths – Short-circuit protection – Nominal voltage 40.7 V without load
Power supply socket	– Base for connecting the power supply alternating application – Base for connecting the column controller, motor controller and communications controller to the power supply – Base for connecting the lift motor – Base for connecting the table base electronics
Load resistance	Overvoltage reduction during lifting under load and when braking the travel motor.
Lift motor (with braking unit)	– Vertical lifting motion of the operating table column – secures the spindle from independent movement – Brushless DC motor with CAN bus interface
Reset switch	Resets the operating table system to a defined initial state
Cardan Trendelenburg power sensor	– Measures the center of gravity and protects against tipping – Prevents overload of the drive
ISM module *1	– Establishes the wireless connection to the operating devices – 2.4 GHz frequency range – Transmission in accordance with IEEE802.15.4
Table base	
Line power socket	– Base for connecting external line power – Integrated line power fuses
Control module	– Controls the hydraulic valve – Control the pump for locking/releasing and 5th wheel extension / retraction (if available) – Controls the power supply for the drive wheel
Drive unit motor *1	– Realizes forward and backward movement as well as the braking function
Filter 1 A	– Noise filter for logic voltage (40 V) in the control module
Filter 12 A	– Noise filter for supply voltage (40 V) in the power supply socket
FW coupling point	– Brings together the power supply and communication cables

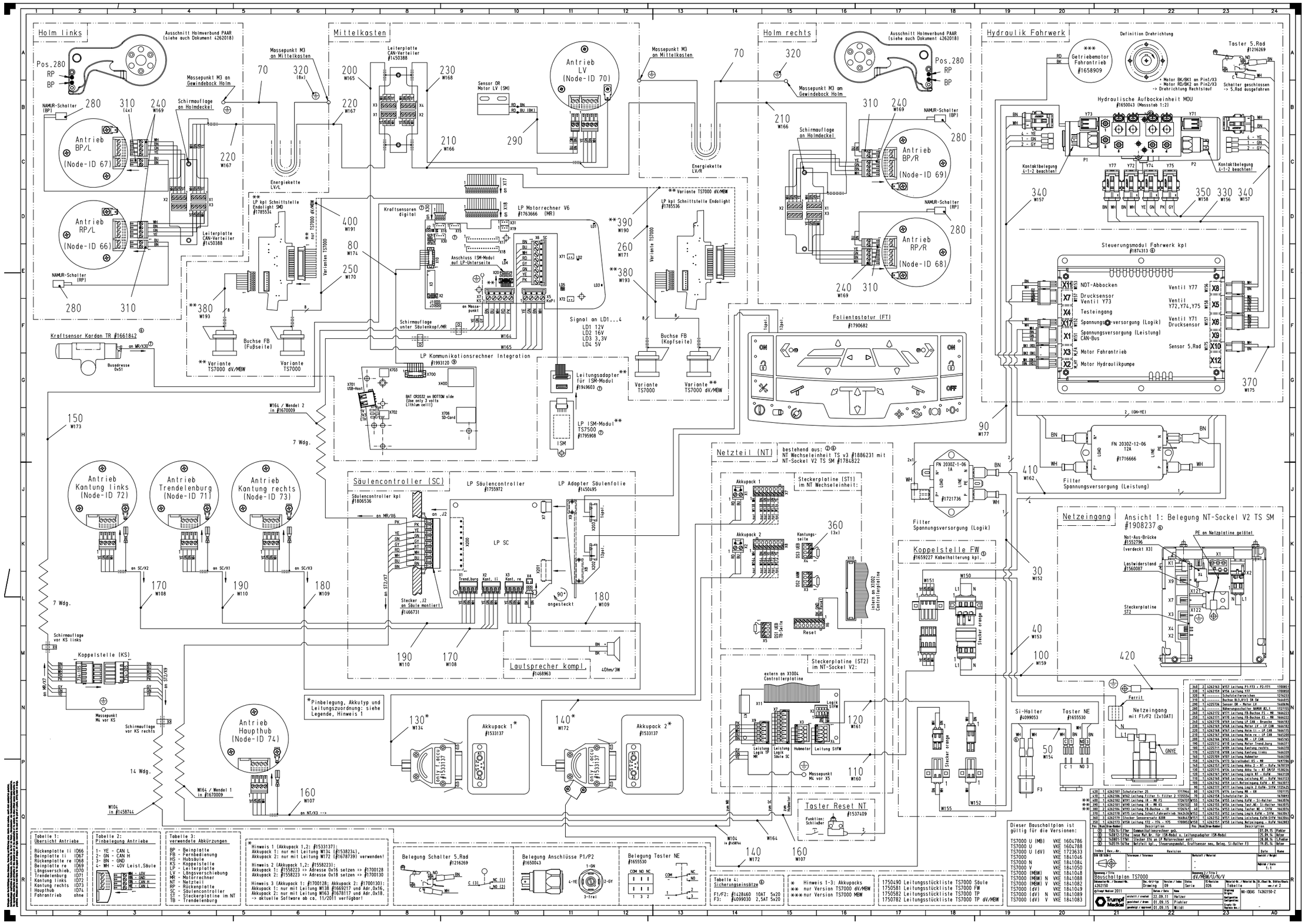
Component	Function
Buttons	– Emergency release for patient rescue – Opens all hydraulic valves using battery power (operating table brake released)
Button 5th wheel	As a limit switch, indicates whether the 5th wheel is extended.
Fuse holder	Fuse for emergency release voltage
Pump unit	– Contains the pump motor, the oil container, the valve block, and the pressure switch – Generates oil pressure to lock / release the operating table and for the 5th wheel – Monitors the locking function and leveling through a pressure switch.

*1 not available on all operating table versions

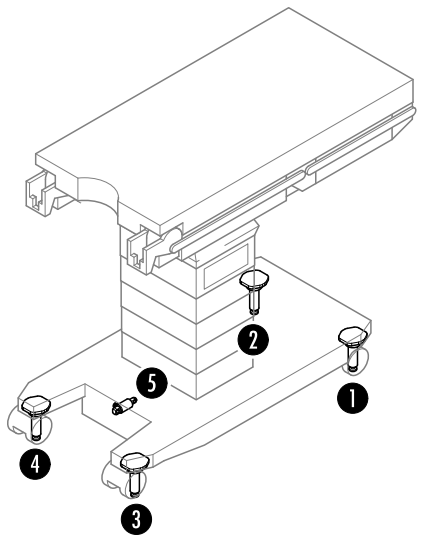
34 Circuit diagram

Item	Mat. no.	Product name	Quantity
W150	1662803	W150 Power input cable - CP in running gear	1
W151	1663044	W151 Power cable CP in running gear - CM, running gear	1
W152	1663047	W152 Logic cable CP in running gear - CM, running gear	1
0040	1663074	W153 Button cable NE - CM, running gear	1
0050	1663075	W154 Button cable NE - Fuse holder	1
W155	1663076	W155 Cable CP in running gear - Fuse holder	1
0070	1678893	Protective earth conductor 24	2
0080	1707175	W174 Cable MC - KC	1
0090	1725425	W177 Logic cable 2 CP in running gear - CM, running gear	1
0100	1663077	W159 Cable power input CP in running gear - PSU	1
0110	1663123	W160 Cable power PSU - CP in running gear	1
0120	1663128	W161 Cable, logic PSU - CP in running gear	1
0130	1538234	W134 Cable, battery 1a - PSU MC/CPM	1
0140	1678739	W172 Cable, battery 2 - PSU - CP in running gear	1
0150	1697786	W173 Coiled cable, CP - MC	1
0160	1466338	W107 Cable, lift drive	1
0170	1466339	W108 Cable, tilt left	1
0180	1466370	W109 Cable, tilt right	1
0190	1466371	W110 cable, Trendbrg. motor	1
0200	1665165	W165 Cable MC - CB CAN	1
0210	1665200	W166 Cable, right bar - CB CAN	1
0220	1666115	W167 Cable, left bar - CB CAN	1
0230	1666182	W168 Cable, motor LT - CB CAN	1
0240	1666183	W169 Cable CB CAN - bridge	1
0250	1666222	W170 Cable, RC socket CP - MC	1
0260	1666223	W171 Cable, RC socket CPM - MC	1
0280	1727155	Proximity switch NAMUR diam. 2.1	4
0290	1460696	OR sensor - LT motor	1
0310	1464015	Socket BL3,81/2 SN SW	4

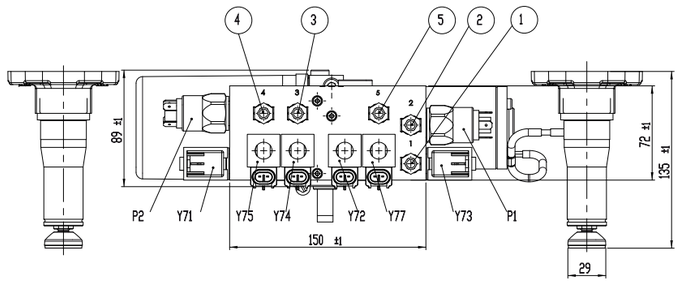
Item	Mat. no.	Product name	Quantity
0320	1216233	Protective earth conductor mark	9
0330	1700850	W156 Cable Y77	1
0340	1700851	W157 Cable P1-Y73 + P2-Y71	2
0350	1700852	W158 Cable Y72 - Y74 - Y75	1
0360	1648447	Sensor plug 820R, replacement	3
0370	1642436	W175 Cable, drive unit switch	1
0380	1726741	W193 Cable FB socket - IR	2
0390	1726732	W190 Cable RC socket - MC CP	1
0400	1726737	W191 Cable RC socket - MC CPM	1
0410	1735554	Cable filter 1 - filter 2	1
0420	1717944	Protective earth conductor 25	1

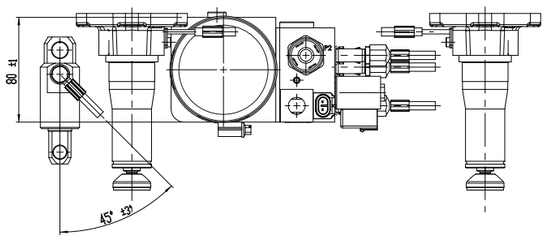

Holm links
Mittelkasten
Holm rechts
Hydraulik Fahrwerk
Antrieb BP/L (Node-ID 67)
Antrieb RP/L (Node-ID 66)
Antrieb LV (Node-ID 70)
Antrieb BP/R (Node-ID 69)
Antrieb RP/R (Node-ID 68)
Antrieb Kontung links (Node-ID 72)
Antrieb Trendelenburg (Node-ID 71)
Antrieb Kontung rechts (Node-ID 73)
Antrieb Haupthub (Node-ID 74)
Getriebemotor Fahrantrieb #1658909
Hydraulische Aufbockeinheit MOU #1650043
Steuerungsmodul Fahrwerk kpl #1874313
Folientastatur (FT) #1790682
LP Motorrechner V6 #1763666 (MR)
LP Kommunikationsrechner Integration #1993120
Leitungsadapter für ISM-Modul #1949603
LP ISM-Modul TS7500 #1795908
Netzteil (NT)
Säulencontroller (SC)
LP Säulencontroller #1755972
LP Adapter Säulenfolie #1450495
Lautsprecher kompl. #1668963
Koppelstelle (KS)
Koppelstelle FW #1659227
Taster Reset NT #1537409
Netzeingang
Ansicht 1: Belegung NT-Sockel V2 TS SM #1908237
Filter Spannungsversorgung (Logik) #1721736
Filter Spannungsversorgung (Leistung) #1716666
Kraftsensor Kardan TR #1661842
Kraftsensoren digital
Akkupack 1* #1533137
Akkupack 2* #1533137
Tabelle 1: Übersicht Antriebe
Tabelle 2: Pinbelegung Antriebe
Tabelle 3: verwendete Abkürzungen
Tabelle 4: Sicherungseinsätze
Belegung Schalter 5,Rad #1216269
Belegung Anschlüsse P1/P2 #1650043
Belegung Taster NE #1655530
Dieser Bauschaltplan ist gültig für die Versionen:
Bauschaltplan TS7000

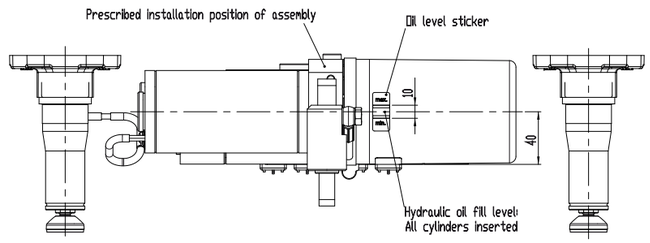
35 Hydraulics Diagram

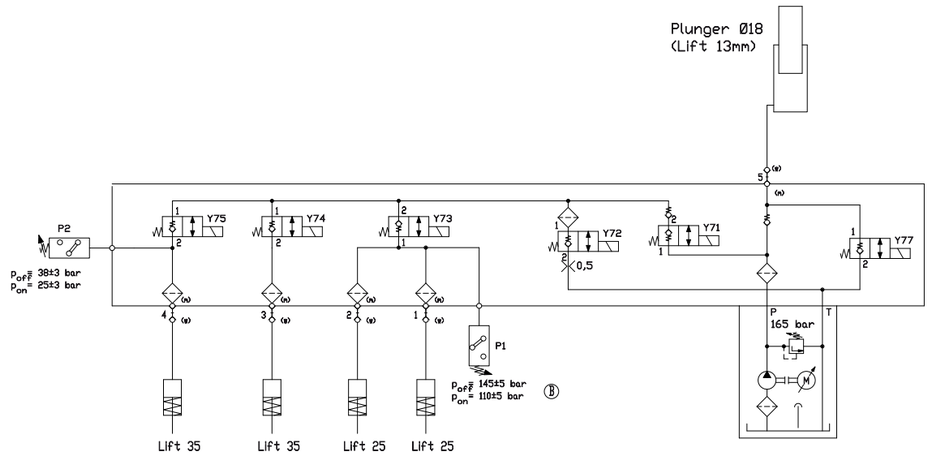


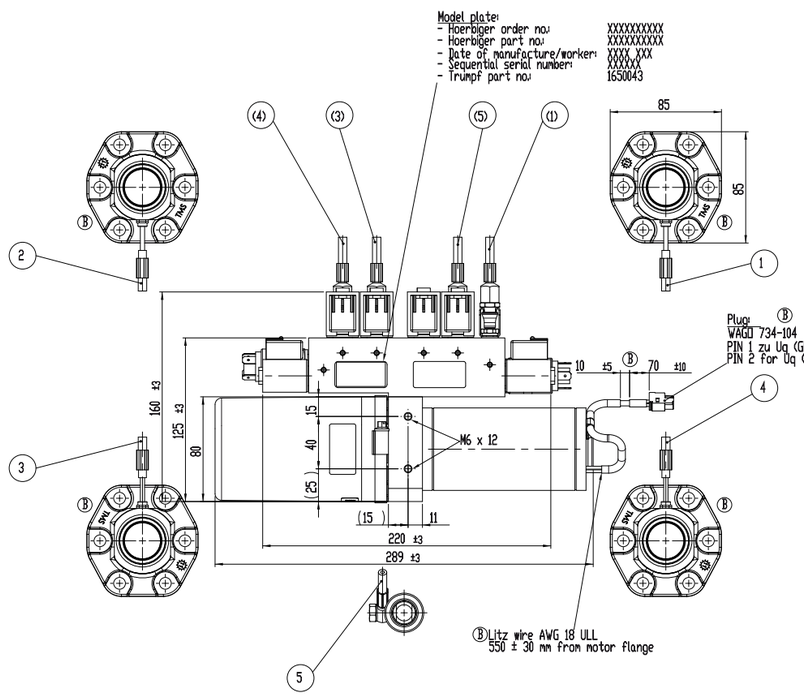
Item	Product name	Position	Quantity
1	Locking cylinder Lift 25	Head end, left	1
2	Locking cylinder Lift 25	Head end, right	1
3	Locking cylinder Lift 35	Foot end, left	1
4	Locking cylinder Lift 35	Foot end, right	1
5	Cylinder, 5th wheel	Drive unit	1

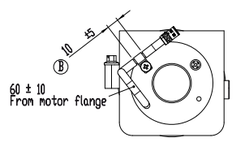


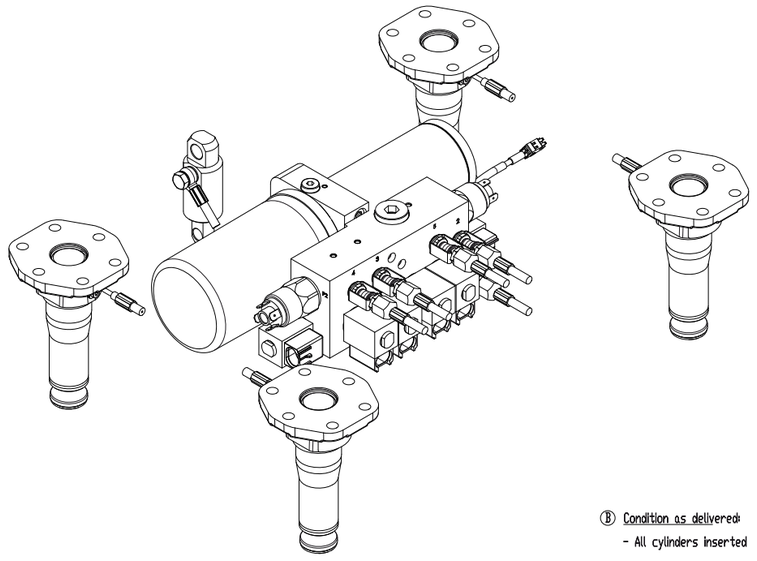












Ⓑ Condition as delivered:
- All cylinders inserted

Technical Data:	
Volumetric flow rate:	Q > 0.42 l/min at 120
Max. system pressure:	p = 165 bar
Hydraulic oil:	Hyspin DSP 32
Nominal voltage:	U = 24 V DC
Max. power consumption:	I = 16 A at 165 bar
Electrical power-on time:	S3 = 20% (at 20°) per DIN EN 60034-1
Electrical protection class:	IP 65 per DIN EN 60529

Version	Ausgabe Date/Visa	Änderungsgegenstand Modification number	Datum Date	Gezeichnet Modified	Geprüft Checked
B	10	2012-11-1975	13.05.2011	TL	Sto
A	-	2011-11-1975	11.05.2011	TL	Sto

Ⓐ

	Datum / Date	Name	Maßstab / Scale 1:2	Gewicht / Weight g	CAD-System Solid Works
Erstellt Designed	13.05.2011	TL	Werkstoff / Material	Oberfläche / Surface	
Geprüft Checked	14.05.2011	KwA	Benennung / Denomination: Hydraulic jack unit		
			Zeichnungsnummer / Drawing number: 802-9032-0	Version B	Blatt / Sheet 1 von / of 1
			Schutzvermerk ISO 16016 beachten / Note on restriction (ISO 16016)		A1

Allgemeintoleranz / General tolerance ISO 2768-mK
Toleranzen / Tolerating ISO 8015
Oberflächen / Surfaces ISO 1302
Kanten / Edges ISO 13715
Projektion / Projection Methode / Method 1 ISO 128
Eingerahmte Maße sind funktionsrichtige Maße. Framed dimensions are important for function.
HOERBIGER 93092 Barbing
Ursprung / Origin | Ersatz für / Replacement for

36 Service Information

TRUMPF provides additional important and up-to-date information for the product range in electronic form on the online information system.

Only personnel authorized by TRUMPF have electronic access to the online information system. This includes TRUMPF Technical Service and TRUMPF authorized, trained and certified repair and maintenance personnel. The password for access to the online information system is available from the Service Center.

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